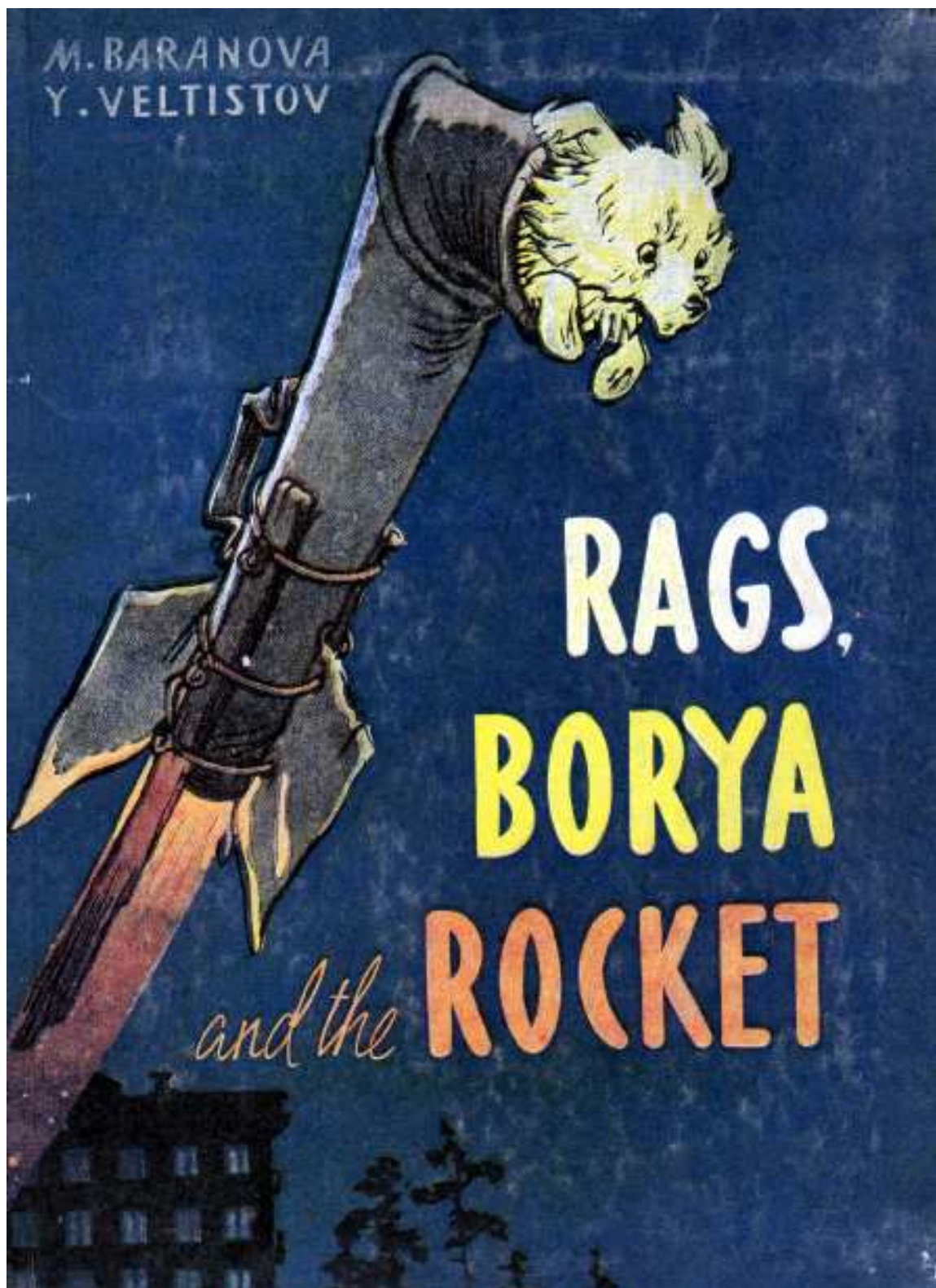


M. BARANOVA
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RAGS,
BORYA
and the ROCKET





M. Baranova, Y. Veltistov

RAGS, BORYA AND THE ROCKET



**A Tale
of Homeless Dogs
and How They
Became Famous**

**PROGRESS PUBLISHERS
Moscow**

М. БАРАНОВА, Е. ВЕЛТИСТОВ
ТЯПА, БОРЬКА И РАКЕТА

На английском языке

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THE INCIDENT AT THE PREMIERE

The bills posted throughout the town stated:

12 A.M. SUNDAY 12 A.M.

Znaniye Cinema

Presents

"RENA IN SPACE"

PREMIERE

a science-fiction film

You will meet the star,

cosmonaut RENA

IN PERSON!

The girl in the booking office of the Znaniye Cinema had a headache since early morning. Into the little round window one tight little fist after another pushed a handful of coins at her, the owners of the coins craning their necks and standing on their toes to see into the booth. They patiently waited while their savings were counted and a blue ticket was cut off with scissors. After an hour of this the girl gave a sigh of relief and hung out the "Sold Out" sign.

The hall was full and hummed with expectation. A group of people came in and headed for the stage. In front of the screen was a table where the guests sat down. The cameraman, taking a quick look at the hall, whispered to his producer friend:

"Congratulations, a full house!"

"Notice the kind of audience: pensioners and children," sighed the producer. "They're the most critical!"

The audience began clapping as the manager of the theatre, in a black suit with a white handkerchief sticking out of his jacket pocket, presented the makers of the film.





The producer stood up. For about a minute he was silent. It became very quiet.

"Comrades," began the producer quietly. "In important moments of my life I always remember how many years ago in Krasnaya Presnya* I stood in line and looked at a flag. It was a red flag, and I was wearing a red scarf: I had just become a Young Pioneer. And afterwards I often thought: how fine that my conscious life began under that flag!

"Today is just another Sunday. But it seems to me that over us, over our whole country, waves a joyful flag. It's the flag of a new era, of the conquest of space by man. The first Soviet sputniks raised it. Today the third sputnik is carrying it. Who knows, perhaps that cosmic vehicle, as heavy as a Volga car, is at this moment flying right over our heads, over this theatre. . . ."

Everyone had a mental picture of green, yellow, and blue Volgas whizzing past the theatre, and up there somewhere in the sky of a spaceship, invisible in daylight, overtaking them.

But the producer was already talking about a dream, about the bold visionaries and scientists who were leading man along unknown paths into space.

"Our film is also a dream," he continued. "And today I'm a bit sad, because it will not live very long. Soon, very soon, man will fly into space, and he will have all sorts of adventures. . . . But I shall be quite happy if you remember our *Rena in Space* just once. It will mean we had not worked in vain. . . ."

Bowing to the applause, he whispered something to his neighbour and handed her a small travelling-bag that lay on a chair.

"And now," he announced, "the circus performer Sofya Lep will present cosmonaut Rena, the star of today's film."

* A district in Moscow known for its revolutionary traditions.—Tr.

A golden blonde in a black dress sparkling with sequins came to the edge of the stage, her arms behind her back.

"Allez-ooop!" she commanded loudly.

And from behind her a small monkey in a space suit jumped onto her shoulder.

Fancy that! The much advertised cosmonaut, whom everyone was awaiting, had been sitting quietly in the travelling-bag!

A wave of delight swept over the hall. Aroused by the shouts, Rena tore off her glasses, threw them on the floor, and began to make faces, proving that she was the most monkeyish of all monkeys, a marmoset.

The spectators, squealing their approval, sprang to their feet and ran to the stage to see the jolly actor close-up. And from the back row a little girl with white hair-bows ran forward with a bouquet of red dahlias. She climbed to the stage and held the flowers out to the animal trainer.

"From our Young Pioneer group," she said quickly, cautiously petting Rena on the head.

The people sitting at the table saw the girl's eyes suddenly widen with fright: the monkey had her by her braid and was baring its teeth with a look of triumph.

Somebody in the audience giggled, then stopped. The faces of the people on the stage were serious. Rena might very well bite the girl! It had happened more than once during the filming of the picture. The quarrelsome monkey would fly at somebody, bite him viciously on the nose or cheek, and a second later would be swinging in the tree, making faces.

The cameraman and the producer made no move; they were afraid of angering the monkey.

"Rena, let go, at once!" The calm, quiet voice of Sofya Lep was heard. "Let go, Rena! Please."

The monkey looked at the trainer, blinking innocently. Then she yawned, slowly loosened her hands and scratched herself. The little girl jumped back and ran off the stage.





The guests felt very awkward.

The manager came to the rescue:

"Dear friends! Today we are showing a première. You are the first to see this film, which took a whole year to make. Soon the lights will go out, and in the brave passenger of the rocket you will recognise this same little monkey. And I hope you will be kind enough to forgive mischievous Rena!"

No sooner had he pronounced this name than the trained marmoset pulled the handkerchief out of his pocket and, waving it, blew the spectators a kiss.

Amidst the general laughter, the guests left the stage.

The lights went out. Rippling waves of strange ethereal music flowed in. Stars dotted the sky. They were motionless. Only one tiny speck in its headlong flight disturbed the calm of the universe: a rocket was hastening back to earth. But even more quickly an SOS reached the earth. The crew of the ship was reporting that they had run into a shower of dangerous rays.

The audience was tense. It seemed as if the very silence of space had entered the hall. Sharp-nosed rockets were poised on the take-off pads. The cosmodromes were deserted. The spacemen, waiting for the scientists to unravel the mystery of the rays and find a defence against them, sat grounded and depressed.

But now a close-up of a familiar face smiles at us. It's Rena! That's who will go out into space on reconnaissance! The trained monkey, at a signal from earth, will push the levers of the apparatus, informing the scientists of her condition.

And still it's frightening. Even for a monkey Rena, dressed in a pressurised costume, is

put in the cabin and strapped to the seat. She turns her head, bares her teeth behind the glass of her helmet, and opens her mouth. Maybe she wants to say something in farewell?

"*Wuff!*" rang out over the whole hall. And again, "*Wuff! Wuff!*"

The sound engineer was puzzled. Where was that barking coming from? When the recording was made, there had been no dog.

But the barking did not stop. Now it was clear to everyone that it was not coming from the loudspeaker. The spectators hissed, turned and twisted in their seats trying not to miss the flashing scenes.

Someone ran along the aisle, swearing softly, "Oh, the devils! Smuggled in a dog!"

The lights came on, and everyone saw the offenders.

A little white dog dived in between the rows. The usher was chasing it; after him ran an embarrassed boy, and after the boy strode the manager.

Confused by the labyrinth of seats, the dog stopped for a second. Four hands immediately grabbed it. The usher held the offender firmly, the boy resisted.

"What's the meaning of this...!" thundered the manager as he came up to them.

"It's... It's Rags," said the boy, not letting go of the dog. "I wanted..."

"I don't care what you wanted. Leave the hall at once," said the manager pointing to the door.

The usher glanced at the manager's red face and released the dog. The boy snatched him up, flung open his coat, and clutching the now quiet white ball to his breast, shuffled towards the exit.

The manager sank exhaustedly into his seat and wiped his forehead with his handkerchief.

The showing of the première continued.

THE EXPLOSION IN THE FIELD

In the evening of that same day, the tenants of the neighbouring ten-storey building were startled by a sudden explosion.

The building was a landmark in the town, because it was the very last one. In front was a beautiful street laid out only a little while before but already graced with thin, sprightly little trees and adorned with the shining signs of shops and other establishments. And beyond the broad grey back of the building spread a spacious field from which flew fresh breezes smelling of wormwood. A little town of garages had sprung up at one side of the field; on the far side



the woods began and there was a small village. Tall building cranes were closing in on the village from all sides.

The field was soon to disappear, but for the time being the children ruled there.

And on this Sunday evening in September, two boys were busy behind the garages. They thought that the house at their backs, with music and lamp-lit windows, was minding its own business and took no interest in theirs.

But they were mistaken. In this house lived an inquisitive girl named Lyuba Kazakova. Her big grey eyes were always wide open, as if she was already amazed, even before the event took place. She was usually the first wherever anything happened. And now Miss Busybody Lyuba stood behind the end garage and stared into the dark. Her heart beat faster and faster from a premonition of imminent adventure.

There, in the dark, two figures—who they were, she could not quite make out—were bent over a strange contraption with an outline like that of a piece of stove-pipe. The pipe, to judge by the scraping sounds, was made of metal, but most important of all there had not been any pipe there before.

Lyuba's sensitive ears detected one more detail, whinnying. It was muffled, barely audible. Where was it coming from? Surely not from the pipe?

She decided to creep up closer to the mysterious structure. She stealthily rounded the corner but immediately drew back: in the dark a match flared up, then both figures leaped up and ran in her direction.

Their footfalls were getting close. The spy understood that the best thing for her now was to disappear. She darted into the space between

the garages, raced out onto the road and almost bumped into a Volga that was driving up. The driver, in warning, flashed his lights. The light hit the girl in the eyes; she squinted and flattened herself against the cold wall.

That very same second, a deafening explosion was heard; from behind the garages a kind of shell rose into the air with a terrifying whistle. Its fiery, hissing tail lit up everything—the field, the enraptured boys with their heads thrown back, the frightened girl and the broad-shouldered man who quickly got out of his Volga. The tail shone and died out. The shell stopped hissing and fell to the ground.

"Gennady, is that you?" the man cried, dumbfounded, noticing the boys.

But the lads were already running to the pipe, from which came a dog's piercing yelps.

"Hold on, Rags!" the voice of the dog's master sounded reassuringly in the dark. "I'll have you out in a minute."

But try as they would, they could not free the dog from the hot pipe. The singed little prisoner howled plaintively.

By then the Volga had driven up to the place of the sad finish. Gena's father chased the boys away from the rocket, threatening immediate punishment. He grabbed the hot stove-pipe and with a curse threw it into the car. The Volga leaped forward and drove along the road to the woods.

A drawn-out whistle was heard from the street: it was the awakened janitor calling the militia. The boys froze, exchanged glances, and disappeared into the darkness.

Almost everyone in the ten-storey building had heard the roar on the field and seen the flash of the explosion. They at once suspected it was the work of the "inventors" from apartments 40 and 41, who had more than once frightened them with their home-made rockets. Some people even defended the trouble-makers, finding them technically-minded. But the majority of the tenants were against such mischief and supported the house manager, who favoured fining the "inventors".

"Too bad there's no evidence," said the house manager to himself. Except for burnt grass and bushes, he and the janitor and the militiaman found nothing.

"Maybe those scamps really sent off a rocket?" the house manager said. "What if it falls on somebody's head? Outrageous! And no witnesses. . . ."

There was a witness, Lyuba. But she kept what she knew to herself.



RAGS DISAPPEARS

In Entrance 2 everyone was used to hearing the door of Apartment 41 on the fifth floor fly open every morning and seeing a shaggy little dog and a tow-headed boy in a red singlet appear on the landing. They would run down the stairs together, and whoever heard the happy bark knew that it was now seven-thirty. When people on their way to work were going down in the lift, the boy and his dog would be running home up the stairs. Usually a sleepy-looking boy from Apartment 40 would come out onto the landing in stripped pyjamas to meet them and, yawning, would say, "Hello. How many times around? Five? Good!"

And after making the dog stand on his hind legs, the neighbour in the pyjamas would go back.

But on Monday no one heard a dog's bark, though from Apartment 41 Borya Smelov appeared in his red singlet at exactly seven-thirty. Stepping softly in his tennis-shoes, he noiselessly went downstairs and began his running around the house. After circling it several times, he ran to the field and began his morning exercises.

People were hurrying to the Metro station. Yaroslav Smelov, Borya's father, was drinking his last cup of tea before the morning shift. But the boy in the red singlet was still in the field, waving his arms and doing knee-bends.

"What's the matter with Borya? Or is he trying to be late for school?" Yaroslav Smelov said, looking at his pocket watch. "I haven't seen Rags since last night. Mother, you ask Borya about that."

Smelov took his cap from the hook and went off to the factory.

When finally his father had disappeared round the corner, Borya ran home. No one looked out from Apartment 40 where his friend Gena Karatov lived. For behind that door the morning began rather unusually, too.

Gena's father Anatoly Karatov, who was a journalist, did not have to go to the office very early that day and decided to have a serious talk with his son. He walked up and down the room, his hands behind his back, while his son, washed and brushed, sat eating his breakfast.

"When will this nonsense stop?" Karatov said angrily. "At first there was only an explosion, then the din with the tin cans, and finally, this awful stove-pipe with that poor dog. I'm fed up with paying fines!"

"All great scientists had to sacrifice something," calmly objected his son.

"In the first place, you're not great. Second, if the conversation is about sacrifices," Karatov stopped in the middle of the room and gave his son a searching look, "I would like to know what you stuffed the stove-pipe with?"

Gena squirmed.

"Film and two hundred boxes of matches. And some other things. Inventors keep their fuel a secret."

"All right, you have a secret. But did you know that your secret was used long ago? And with very sad results. Have you ever heard how a Chinese mandarin flew in a rocket?"

"A Chinese mandarin? In a rocket?"

Gena stopped eating. He knew that the ancient Chinese invented the rocket, just as they invented gunpowder, the compass and paper. Their rockets were fiery spears, pipes stuffed with gunpowder, which flew into the enemy camp. But Gena had never heard of the mandarin who wanted to saddle a rocket.

"For your information, there was such a mandarin in China. His name was Wang Hu. In fact he was very much like you. He also wanted to fly with the aid of fireworks rockets. He made a chair, fastened it to two great dragon kites designed to hold him in the air and stuffed his flying apparatus with rockets."

"That's tremendous!" Gena cried bouncing in his seat in his enthusiasm.

"There's nothing to be so happy about. The story has a sad ending. Wang Hu thought the rockets would go off one after another, but they went off all together, all forty-seven of them! And he was killed. There's your fireworks secret!"

"He was a brave man anyway, Dad!"

"You're impossible!" Karatov shrugged helplessly. "It's no use talking with you. From now on," he said decisively, "the chemical laboratory in the bathroom is closed down! Books on rocketry will be under lock and key! And, in general,

we'll have the strictest schedule. Incidentally, give me your school journal. What's this? Another unsatisfactory in physical education? There's no excuse for it. Why does your friend from across the hall do his exercises every morning, while you—you laze around in bed? Why is he as springy as cable, and you—you're like straw."

"Brains are what get you the farthest," answered Gena with conviction and pushed away his plate.

"Very nice, nicely said.... Wasn't it you who gave your friend the idea of bringing a dog into the cinema and interrupting the film?"

"Dad, you'll agree that an experimental animal has to be given an idea of the conditions in space. We never counted on a slip-up. Poor Rags, he probably got burned."

"What did you expect? That poor dog suffered, I can tell you. He ran away the minute I got him out and I couldn't see if he was hurt. He must be home by now."

"No, he didn't come back. Where'd you let him out?"

"Ah, you want to know where the rocket is?" Karatov narrowed his eyes. "That won't work, Gennady. Besides it's time for school."

* * *

Borya and Gena rushed into the classroom with the bell. Of all the many monitors in charge of Order and Cleanliness of ears, exercise-books and journals, Lyuba Kazakova was the only one who showed any interest in their hands. She examined them as if they had Chinese characters written all over them. The other monitors were already at their desks, and class captain Lev Pomeranchik waved his fist at the late-comers.



Instead of asking for a recitation of *Autumn*, the poem they had had to learn by heart for their home-work (our heroes heaved a sigh of relief), the literature teacher told the class to get out their exercise-books and write a composition on "What I Have Read About Friendship".

The children had a lot to say about friendship. A colourful chain of familiar images gushed out onto the paper. Along the blue lines rode Chapayev in his winged cape, behind him Commissar Klychkov and his faithful aide Petka. The Young Guards, grouped around their flag, fearlessly faced the enemy. The fisherman's grandson and the schoolboy gazed out to sea at the lone white sail. And on a page of one of the exercise-books, leaving a trail of purple blots, Ivanushka-the-Fool galloped along on his faithful little Humpbacked Horse.

The teacher thought about her class as she walked slowly between the rows of desks. About how inseparable some children with completely different characters were. For instance, those two in the back row. One was getting on with his work quickly, chuckling to himself and finding time to turn round and nudge his neighbour. The other was writing slowly, frowning and obviously wrestling with every word.

"Karatov is a capable boy," thought the teacher. "The children call him an inventor, and the maths teacher thinks highly of him. He forgives him all his airs and sudden attacks of deafness, assuming that it's all in imitation of Tsiolkovsky."

But she liked the quiet Borya Smelov better. Though he often gave in to his self-confident friend, behind his restraint one felt a strong and ardent nature. Sturdy and agile, he was as boisterous as any other boy, but he was not sly and never hid behind his friends' backs.

The teacher knew Gena and Borya well, but she could not help being amazed at their compositions. Karatov depicted the friendship of Huckleberry Finn and Tom Sawyer in detail and was enthusiastic about their independence: "The strict discipline at home oppressed Tom. But when he ran away from his aunt he had some wonderful adventures with his friend Huck. I am sure Huckleberry Finn and Tom Sawyer became important people, travellers or engineers. That is, if the grown-ups did not prevent them, as they prevent some people." Who these "some people" were, was not stated.

Borya Smelov, for his part, selected the touching friendship of the deaf and dumb servant Gerasim with his dog Mumu.* "I wouldn't have obeyed the mis-

* From Turgenev's story of the same name.—*Tr.*



truss' orders to drown the dog," wrote Borya. "On the whole, you must take care of dogs!" he finished unexpectedly.

The teacher never suspected that while writing these lines the boy had pictured to himself a lone, hungry dog wandering in the wet autumn woods. . . .

Into these woods at the end of the field, the two friends ran off after school, their school bags in their hands. They scoured the edge of the woods but found no trace of the rocket.

Then they stopped still: somebody moved in the ditch. They dashed over and were surprised to see that it was Lyuba. She was squatting on her heels, lightly tapping the burnt side of the rocket.

"Did you come to examine our hands even here?" Gena roared and jumped down into the ditch after Borya.

"But he isn't here!" Lyuba said, ignoring the irony, and pulled herself out of the ditch with the help of the bushes. Borya knew she meant Rags though she had not named him.

The stove-pipe was empty. Black as it was with soot, with dents in its side, it still interested Gena. While he was making up his mind if it could be used again he noticed Lyuba's yellow shoes over his head. He looked up.

"You still here?" he cried, jumping to his feet. "Beat it. Or else!" He showed her his fist.

"Now I'm really scared," said Lyuba haughtily, with a toss of her braids.

"Clear out!" ordered Gena. (Lyuba retreated.) "And keep your mouth shut!"

In the meantime Borya was in the woods searching for Rags. He looked in every hole, waded into the islands of prickly firlets, called

and listened: every moment he expected to hear Rags' answering bark. . . .

Under a tall red pine he noticed a white ball. His heart beat faster; there he lies, tired out, poor thing. He ran up, saw that it was a crumpled newspaper, and kicked it in disappointment.

A locomotive whistled somewhere: he thought it sounded like a dog barking. The locomotive whistled louder; Borya sighed: it was not a dog.

A big grey dog dashed out of the bushes in front of him. It seized a stick in its teeth, and ran away paying no attention to Borya. Someone was training his German shepherd.

In the whole woods no one answered the boy's call. Even the big dog was quiet. And the locomotive was already far away.

When Borya, scratched and desperate, returned to the edge of the woods, he found his friend in the same ditch with the rusty pipe in his hands.

"Hey! You still here? Why aren't you looking for Rags?" Borya burst out angrily.

"You and your Rags!" wheezed his friend, waving him away. "Look, here's where the outlet got plugged up. That's why the rocket plopped. That girl," he nodded in the direction Lyuba had taken, "will spill it all over. How did she guess? Well, never mind. The main thing is not to give up. We'll clean the pipe and send it up again. This time there won't be an accident."

"It's what you said before. But Rags got hurt. And we don't even know where he is. . . ."

"A test-pilot has to have an iron character," Gena interrupted him. "And you keep on crying over some old mongrel."

"So that's how it is?" Borya blew up. "Well, then, test-pilot, sit in your old ditch! And you can count me out as your assistant."





He turned on his heel and went into the woods.

"You forgot your bag!" Gena yelled from the ditch.

Borya did not turn round.

Gena had to go to Lyuba hat in hand and ask her to take his friend's bag home. The girl was very surprised to see the proud inventor so put out and upset. She even forgot to be offended.

"All right, I'll take it to him," she said understandingly. "Only promise we'll set it off together."

Gena nodded glumly.

Lyuba brought the school bag in the evening. When she rang, the whole Smelov family rushed to open the door: they were expecting Rags.

But Rags never came home.

AT THE DOG SHOW

If you only knew how bitter a person feels when he loses two of his best friends at once. How unpleasant to have to look indifferent when he passes his old friend. And even worse is the thought that he lost him through his own foolishness.

If you only knew what a good pal he was. They first met on the bank of the river Volgusha, which winds back of the Young Pioneer summer camp. Borya had gone for a swim and came home with a wet, shivering puppy, wrapped up in his vest. Whether the puppy fell in the river or some cruel person threw him in, no one knew. The children named him Rags, because he was good-natured and had floppy ears that were as soft as a towel. Borya was afraid his father would not think much of a puppy that had no

pedigree, but Smelov Senior said mongrels were the most human of all dogs.

When Rags grew bigger, his muzzle became a little elongated; it was clear that one of his ancestors was a Spitz. His ears became pointed and stood up; his white fur lay in soft waves. Rags was a very tactful dog. He quickly understood that he must not get in the way in the kitchen and must not bother Borya when he sat under the green lamp with his books. But if he wanted something, he sat down near his master and gazed at him with his shining dark brown eyes, calling attention to himself.

He had his own bed and his own bowl. He knew all the family holidays. When the postman brought a blue envelope stamped "Free, Army mail", Rags leaped and ran barking through the hall, and no one scolded him. They all gathered in the big room and Yaroslav Smelov put on his glasses and read aloud the letter from his older son, Sergei.

And Sundays! Rags recognised them by signs known only to him. They had their special smells, their sounds, their attractive colours.

Winter was the time of crisp ringing days, when Borya's skis cut the surface of the snow as they glided off to meet the cold sun, while Rags ran ahead and, breathless from barking, rolled over and over in the snow until the skis caught up with him. Then he jumped up and ran with great leaps beside the skis, glancing up into the face of his master.

In summer the locomotives puffed and the electric trains droned. And Rags squeezed with the others into the noisy and crowded car, then ran down the plank stairway of the suburban station and finally, breaking free, raced toward the fir forest, standing shaggy and lowering





like a bear. There he rushed about barking, scaring the squirrels and birds, or sniffed around in the grass, searching for Borya's lost ball.

Everyone understood his joy, everyone was just as happy and free and ready to laugh.

And how often on the street or in front of the school, a yapping white ball flung itself gaily under Borya's feet. By the bites, scratches and pulled-out tufts of fur, it was not difficult to guess what fortitude it took to travel through those dangerous streets, to wait at strange gates, where any minute some great big dogs might appear.

Oh, Borya, you had not taken proper care of Rags, and now you wander along the streets all alone without even noticing that autumn has come. The sun is shining brightly, the leaves rustle underfoot, the air is cool and smells of watermelon rinds. It is hard to decide which is brighter and more colourful, the crowns of the trees, or the fruit stands, or the autumn flowers in the parks.

Borya only had eyes for the dogs on the street. He made a sudden discovery. All of them—



black, white and red—were being led by their masters in one direction, towards the park on the other side of the tram line. He wondered why there were so many of them.

Past him went a proud Great Dane, jingling his golden championship medals. Leading him was a stout woman with a reed basket, the kind they take to market. Some doglovers followed at a respectful distance, discussing every muscle of the four-footed wonder. Fascinated by the Dane Borya did not notice how he entered the park and found himself at the dog show.

Over the broad field fluttered some white and green flags with pictures of grouse and elk heads, and a pandemonium of barking reigned. Borya was dazzled: so many dogs of every possible breed! Arched, long-legged Russian wolfhounds were being led past the judges, who were sitting at little tables. If you let loose one of those in the field, it would set off like an arrow, cutting the air with a whistle, and overtake a hare, a fox or a wolf. The 'bullet dog', said the doglovers with respect of the famous Russian





borzoi and discussed the pedigree of each one back to their great-grandfathers and great-grandmothers.

Probably all these doglovers were hunters. While Borya stood among them, he became a connoisseur of dogs. The shaggy short-legged dogs that came next, the spaniels, seemed, after the borzois, to have just discarded their stilts. The ears of these small Spaniards hung to the ground and their short tails wagged with the tirelessness of a pendulum.

Round the circle walked the fiery-red Irish setters and pointers, muscular as sportsmen. The wire-haired fox terriers, keen and fearless dogs, went jogging by, their muzzles looking like hatchets. And the smooth black dachshunds, which Borya had until now considered idlers and freaks, held themselves with quiet dignity on crooked but sturdy legs. Their masters presented to the judges' panel long lists of trophies—badgers and foxes, which the fierce dachshunds pulled out from their holes or chased out for the hunter to shoot.

Yes, the dachshunds really amazed Borya. And the huskies upset him. His heart ached when he saw the gay white fluffy dogs with sharp ears and their tails curled over their backs. They so much reminded him of his missing Rags.

"This is all small fry!" An old man in a faded old-fashioned forage-cap interrupted the boy's thoughts. "If you want to see something worthwhile go to the hunting pavilion. Would you like me to show you?" He drew Borya along with him to the pavilion of hunting gear.

There double-barrelled guns and long knives were hanging on the walls; on tables stood rub-

ber boots, traps and bags for wild fowl; and at the entrance towered a great dark-brown bear. Shaggy and terrifying, he was coming out of his lair right at a hunter, who stood with his finger on the trigger.

"More than six feet!" announced the old man with pride, waving a tape-measure. "And claws—two inches long! There's size for you! Not one of your little dogs!"

"But the bear was caught by dogs," said Borya.

"The hunter killed the bear!" insisted the old man.

"It's written right here," Borya continued to defend the dogs' honour. "This bear was killed near Novgorod by a member of the Moscow Hunting Society, Strelnikov, with the help of the huskies Zvonkaya and Druzhnaya."

"Well, if that's what's written there, then you're right," the old man gave in. "But you didn't see the right dogs. Now service dogs are really worth their salt."

In the service dog section, the old man did not get to use his tape-measure. There everything was in motion. Boxers, with jaws like great warehouse padlocks, overcame the obstacle course with astonishing lightness, considering their massive build. They gracefully ran along the log, flew over the trenches, leaped onto a high wall, pulled themselves up and over, and jumped down from a height of six feet to the enthusiastic cheers of the spectators.

Not far away in a fenced-off square, a figure in a thick padded jacket with extra-long sleeves moved slowly.

"Get'm!" commanded the woman with the reed basket whom Borya had seen before. And the Great Dane, as big as a calf, reached the



"burgler" in several bounds, knocked him down, and triumphantly placed his heavy paw on him. It became clear to all that still another gold medal would soon be jingling on the dog's collar.

The old man in the forage-cap parted with Borya when he heard that the boy wanted to look at the lap-dogs.

"Small change, microbes." He waved his hand and walked off.

From behind a pavilion came a chorus of barks like the tinkling of many bells. A group of boys was jumping about in the open doorway, singing out:

*Did you ever see a dog
Not much bigger than a frog?
Ha-ha-ha, a funny pup:
You can drown him in a cup!*

The boys were not exaggerating one bit! In the middle of the pavilion in front of the judges' table, stood a man holding a tiny toy terrier dog with bulging eyes on the palm of his hand. No sooner did he set her on the floor than she jumped high in the air—really, just a flea on leash! It was a mystery how the judges kept a straight face!

And then into the ring came a strange creature, so shaggy that it was hard to tell the head from the tail. It gave a growl and opened its mouth, revealing a long moustache and a beard. Borya burst out laughing and was immediately ejected through the nearest door. A minute later he was hopping outside the pavilion and heckling the judges, singing with the merry group of youngsters:

*Barber, sharpen up your scissors;
Here's a client odd and wierd.
You shall have to cut his whiskers
And perhaps to trim his beard.
Ha-ha-ha, hee-hee-hee!
What a funny dog is he!*

"Nothing of the sort!" said someone behind Borya. "That's a strong and hardy dog."

Borya turned round. The defender of the terrier seemed at first glance to be a student, lean, with his shirt open at the neck and eyes twinkling behind thick lenses. His companion, round-faced and rosy, in her summer coat, was also rather like a student.

But then they probably were not students, since a judge with a red ribbon on his lapel was accompanying them.

"These pesky boys! Always hanging around and getting in the way!" said the judge loudly to the guests. "Come, I'll show you something more interesting."

"I'd buy a terrier offhand," said the young man quietly, turning to the girl. "But we can't pay that much. With that money we have to buy four dogs. Oh, what a stingy bookkeeper we have!"

Borya listened to these scraps of conversation with half an ear and again galloped round the pavilion. If he had only known who these people were and what role they were destined to play in the life of his lost friend Rags! But he immediately forgot all about them. He romped about, laughing with the other children.

But the dog owners understood that these two were not ordinary visitors, for the judge himself was showing the medal winners and champions.

"Here, how about this one?" The judge brought his companions to a German shepherd, sitting quietly in a corner. "A thoroughbred. Five Gold and one Grand Silver medal."

"A very fine dog!" praised the man in glasses, peering at the celebrity with his near-sighted eyes. "But you can't use big dogs for experiments."

"Yes, of course," recollected the judge, "you said you wanted a small dog. How do you feel about a spaniel?"

"Also a little too big."

"Then a fox terrier. Not very big, obedient, keen. When the neighbour in the next room unfolds his newspaper, he hears it, breaks into a peal of barking!"

"No, no," the girl definitely turned that down. "We want something more ordinary, more patient."



Then her companion interrupted: "Valya, look! How about that one?"

"Just what we want!"

Both guests marched to the fence. There, on a heap of yellow leaves, a dirty little dog lay all by himself. His thin little muzzle, like a Spitz's, bore the marks of bites and his fur, once soft and white, was matted and hung in tufts.

"That's not our dog. It's a homeless mongrel. It might bite," warned the judge.

The dog had no intention of biting. It jumped up, frightened, and dived under the fence.

"Why did you frighten it?" reproached the man in glasses.

"That's just the kind of dog we want," explained the girl. She leaned over and called, "Here, Boy! Here, Pal! Here, Whitey!"

"I dare say you won't find such dogs at our show," said the judge. "You will have to look somewhere else."

He adjusted the red ribbon on his chest and went off to his Danes and fox terriers.

"What shall we do now, Vasily?" asked Valya desperately.

"Tomorrow I shall definitely speak to the bookkeeper," he said, frowning. "How can we possibly buy a pedigree dog on the money he gives us? But the funny thing is, Valya, that we can't even spend that money. All hardy dogs are too big to suit us. I've looked over all the dog shows and breeding farms; I was at the Kennel Club and went to all my friends who have dogs. And I didn't find a single one that's of any use to us."

"You're not the only one," Valya said. "All our colleagues have been looking and can't find anything either."

"But you know, they run all over town," Vasily said with conviction. "Just like the one that ran away. But I can't catch them. I'd be sure to fall and break my glasses. That's it, I'm convinced. Only stray dogs will suit us. Only ordinary mongrels."

SNAPPER

The guests of the dog show met next morning at the entrance of an ancient two-storey house, fenced off from the street by an iron grating and a row of poplars.

"Good morning, Vasily!" Valya cried out from down the street. "We're saved! I was here earlier and saw them. We have some dogs!"

"Not really? From where?" Vasily was delighted.

"Your prophecy of yesterday has been fulfilled: stray dogs. No need to spend money, no need to quarrel with the bookkeeper."

"And now I hear barking!" the young man said with satisfaction.

They turned into the entrance, went upstairs to a small room where they put on their white smocks. Then they went down a long hall to a door covered with black oil-cloth.

They were met with a desperate barking. In the long hall were two rows of cages. Yesterday evening they had been empty, and today a whole pack of whining and yapping little dogs protested behind the iron bars.

The homeless little mongrels were displeased. They were used to a free life, to running in the streets barking, to staging fierce fights under gates. The free life was, of course, rigorous; there was hunger, rain, and frozen feet in winter. But in spite of that, how wonderful it was to feel completely free and to see how the coddled house dogs trembled with cold.

"The way they bark, doctor, is just awful," complained the attendant.

"Of course they bark. They're dogs, aren't they?" Vasily answered, half jokingly.

"There is a nice little one in the sixth cage. Homeless, but so affectionate! She already knows me. . . ."

"Kozyavka (Duffer)," the girl read on the name plate. "What a little darling!"

Pretty little Duffer nimbly frisked around in her cage, standing on her hind legs and wagging her tail, clearly desiring to please.

"Has the professor been here this morning?" Vasily asked.

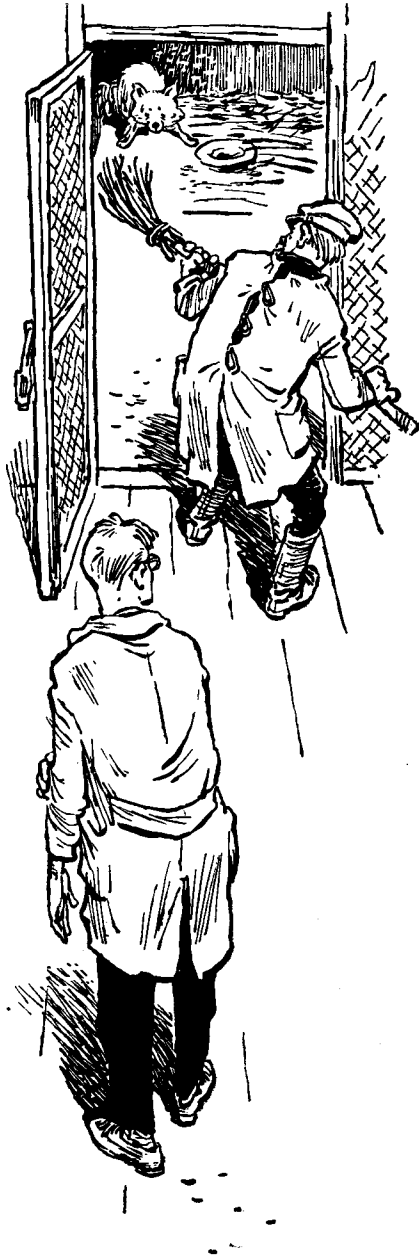
"Yes. First thing," the attendant replied. "He said 'Duffer' as soon as he saw this little beauty."

The young man in the white smock went from cage to cage and carefully examined each dog through near-sighted eyes. The little prisoners looked back at him through the netting.

The white dog with the longish nose watched him more carefully than any of the others.

Like all the others, he was a tramp. But before the hand of fate had turned him into a wanderer, he had been a house dog with a master and a name, Rags.

He recognised the man in the glasses and the girl. Yesterday, as Rags had crawled under the fence, he had been caught by some people who put a rope round his neck and stuffed him into a jolting van full of howling fellow-sufferers. He had spent the night with them in a cage at the dog pound, and at dawn a van brought him to this place.



He did not bark, like the others. He did not want anything and did not trust anybody.

"Look here, Valya, isn't this the same one we saw at the dog show?" Vasily said, stopping in front of Rags.

Valya closely scrutinised the little stray.

"You think so? Yes, now I recognise him. It's the same dog. He looks like a Spitz. Only he was dirtier yesterday."

From his corner Rags cowered when the man took hold of the door.

"Be careful, doctor," the attendant said. "That dog's nasty."

Vasily only smiled and went into the cage. "Why, we're old friends. . . ."

He no sooner held out his hand than Rags bit it.

"Oh!" Valya cried out, as if it were she who had been bitten.

But Vasily only made a wry face.

"Oh, you snapper!"

"Vicious beast!" the caretaker shouted. "Biting people! I'll give you one with the broom!"

And he waved his broom.

The little stray crouched in the corner, the hair on his neck standing on end. He gave a short growl and then let loose with such a volley of barking that it seemed he'd burst at any moment. The whole pack joined in. The sight of the broom infuriated them.

"Put that broom down," Vasily said sternly to the attendant. "It's my own fault. And please, don't shout at the dogs. In fact, you'd better put the broom away for good. We must have peace and quiet."

Valya bandaged the doctor's hand with a handkerchief. And they went away.

The attendant went on for a long time about

how there were some dogs who did not appreciate gentle treatment and were completely unable to tell good people from bad.

Grumbling, he washed the cages down with a hose, filled each dog's water-bowl, gave them each an armful of straw, and then began passing out bowls of tasty-smelling oatmeal soup. In Rags' cage he also set down a bowl of soup and immediately went over to see Duffer.

"Well, Duffer, how do you like it here?" he asked, petting his favourite, while she was contentedly gnawing a bone. "You're lucky! From the street you landed right in the Institute, on government keep. And why? Because you're small. Little ones are in great demand here."

This fellow was saying strange things. In the dog world the biggest one had up to now been considered the best. He had fewer scratches and more delicious bones. What little dog did not dream of being a Great Dane or an Alsatian! But the caretaker made it sound the other way round. . . .

Rags ate his soup but did not calm down. How could he calm down! He expected to be punished for his misdeed. Instead, they fed him! Rags could not understand it. Maybe they were waiting until dark set in, then they would seize him, tie him up and beat him with a broom?

He drifted off to sleep. Though he slept restlessly he did not hear the attendant write the word "Snapper" on his cage with a piece of chalk.

THE SPACE DOCTOR

Valya liked the way Vasily treated the dogs. He never raised his voice or got annoyed. It was as if he were dealing with small children.

For several days Snapper lived in expectation of punishment. At night he would wake up with a pounding heart, jump onto all fours, ready to defend his life, and give a low growl.

"He dreams about that broom!" Vasily said to Valya.

His eyes shone pleasantly at the dog from behind his glasses. In such moments Rags felt very uncomfortable and turned his head away. Only his new name recalled the unpleasant event. He simply could not get used to being called Snapper.

"Never mind." The doctor was thinking aloud. "He'll calm down, feel at home, and become an excellent astronaut. Right, Valya?"

"Astronaut. . ." Valya answered dreamily. "Flying through the Universe. Snapper doesn't even suspect how romantic his future sounds. I'd change places with him any day."

"That's childish prattle," Vasily frowned. "You're a space medical student,



Valya, and don't forget it, please. A ship's doctor sails in a ship. The doctor of a football team sits on a bench at the goal-post. A surgeon operates on a patient in an operating room. And a space doctor is not in the rocket capsule but at the instruments."

"One would think," the laboratory assistant retorted, "that you were born a space doctor. And when you were little, you played with instruments instead of toys."

Vasily burst out laughing.

"Don't be offended, Valya dear. You know, I was very lucky! For you it's all quite simple and clear. Yesterday—a school girl, today—a lab assistant, and tomorrow—you know what you'll be tomorrow because you are studying at the Institute. But when I was studying, jet planes were new, not to mention rockets. I expected to become a veterinary surgeon."

"Then how did you happen to become a space doctor?"

"I'll tell you. When I finished the Institute, they asked me if I would like to combine two ancient sciences, medicine and astronomy, and work in the newest sciences of all—cosmic medicine? I grabbed at the chance. And here I am..."

No one was surprised when Vasily became a student at the Institute of Veterinary Surgery. His love for animals was well known at home and at school and perhaps even in the whole district. Little boys, seeing the tall bony lad with tousled hair and a kindly smile would shout, "Doctor Ow-it-hurts!* I've got a tummy-

* An animal doctor in a much-beloved children's story by Kornei Chukovsky.—Tr.

ache!" They knew he would not get angry and were always running up to poke their curious noses into his bulging pockets. Old ladies and housewives were always bringing puppies and kittens to the Yolkin apartment. The abandoned things found their first home there in a ply-wood box. In the corners of Vasily's room lived hedgehogs and guinea-pigs, tortoises and other good-natured creatures.

Sometimes there were troubles on this score.

"One time we had quite a scare in our house," Vasily said. "Snakes crawled out of the waste-bin and over the whole yard. What a panic there was! Shouting, screaming, and all doors and windows locked up. Everyone was afraid to go out. A militiaman and the janitor armed with sticks came and told my mother to clear the yard of snakes. I was at school then. My mother said, 'There aren't any snakes in our apartment. And here you're ready to put all the blame on my son! Clear the yard yourselves!' So they marched right to school and said to the headmaster: 'Hand over your zoologist. People have to go to work and to the shops, and nobody dares leave the house.'

"I guessed what the trouble was right away. The day before I had collected some grass-snake eggs in the bog, and my mother had probably thrown them out. They must have hatched in the warm waste-bin, in the sun. On the way, I tried to explain to the militiaman, but he was in no mood to listen and kept saying, 'Terrorising the tenants of the house with poisonous snakes. . . .' I gathered up all the little snakes and demonstrated that they didn't bite. But we had to pay a fine all the same. . . . It never even occurred to me that my hobby would some day become my profession. . . ."

Vasily didn't tell anyone how he had tried to enter a flying school. Not a single person, except his best friend Victor Chernayev, knew that awkward, kindly Yolkin, nicknamed Dr. Ow-it-hurts, dreamed of becoming not a zoologist, a veterinary surgeon or even a big game hunter in Africa, but a flyer. All boys want to become airmen, but later, with age, come other desires and goals. But Vasily and Victor sent applications to a flying school after their final exams.

"Good morning, comrade captain," Vasily said to the military man at the table, squinting and counting the stars on his shoulder-straps.

"Good morning," the captain answered without looking up, and took a newspaper. "Read that headline. But don't come up. Read it from there. You wear glasses? Didn't you know you need good eye-sight here? Of course, I understand . . . but a flyer wears only one pair of glasses, his goggles."

But his friend was accepted. Forcing down his elation, he came to console Vasily.

"Now, Doc, don't feel too bad! A doctor in glasses is even better. More dignified."

And Victor, the lucky fellow, learned all about planes, jumped with a parachute, made loops in a training plane and in general got ready to pilot a jet fighter. Soon he had one and saw the world from way up there.

The student envied the flyer. But when he unexpectedly became a space doctor, his envy passed. Vasily began to picture the world quite differently from the way pilot Chernayev saw it: not with contours of forests, rivers and cities but as a great globe with the outline of continents and oceans. For that was how it would appear to all those whom Vasily would train for space flights.

DON'T BE AFRAID! NOTHING TO BE AFRAID OF!

"Why do we use dogs?" the lab assistant inquired one day. "Not frogs, not monkeys, but dogs?"

"I think there are lots of reasons," Vasily said. "First, their organism is similar to ours. Second, they get used to things quickly and are trusting. Third, they submit to the experiments and don't get nervous. Then think, Valya, how often dogs have come to man's rescue. Out hunting, at war, in the clinics. They are always sent out as scouts. Now, too, they'll be scouts in the universe. So, let's go to our charges and see how they are feeling today."

The little scouts had no idea how important they were and lived a fine life. They liked the kind treatment and they liked the filling food, prepared with an eye to dogs' tastes, with little bones and cartilage and even pieces of meat. If they barked, it was friendly barking.

So many kind hands fed those little strays of yesterday, washed and combed, weighed and measured, and took them out walking, teaching them to be neat and tidy! If some little imp got a slap, it was only in play and was not worth feeling insulted over.

Even the little motley one called Spotty, who had been ready to bark himself hoarse at any trifling thing, calmed down. He had only one unpleasant habit left, that of starting and baring his teeth if anyone surprised him from behind. He had evidently been beaten by some vicious person, who had stolen up to him from behind. So if Spotty was busy with a bone or sleeping, no one came up to him without first calling out.

Duffer was the general favourite. She had a magnificent tail, which expressed the full breadth of her kind doggy soul. When she was happy, her tail waved in

the air like a painter's brush. It could wave a hundred times, a thousand times, and not yet tired! Well, maybe it would drop for a minute together with her head, poised in expectation of a caress, and then it would fly up and wave in a special way, as if saying, "I'm pleased with life!" And how provocatively her tail stuck out when she suddenly got into a fighting mood, and how ashamedly she put it between her legs when she felt guilty. Words are powerless to describe the emotion which the tip of her tail—just the last few tail-bones—expressed when the attendant appeared with her bowl.

The exact opposite of Duffer was the slow, lazy Palma. She was always yawning and stretching. Her shaggy, black ears hung on either side of her white muzzle, as if sewed on by mistake by some absent-minded tailor.

The thin short-haired Boy looked out of truthful black eyes. With the same innocent expression, he might steal a handkerchief sticking out of a pocket. Caught in the act, he would sigh and lower his tail. But he would continue to look a person straight in the eye, as if saying frankly, "You see what the street can teach one? I know the full implications of the situation, but I simply can't help myself..." After a few minutes of heartfelt repentance, the little thief would again steal something. Really, Boy had to be seriously re-educated!

Time passed, and Rags changed just like the others changed; nervousness gave way to peacefulness. He became extremely quiet, rarely barked, did not fret and did not quarrel with his neighbours. But this peacefulness had nothing in common with indifference or laziness. He was all attention. The sharp ears were pricked forward like the tips of arrows, and his eyes





took in the slightest change in the situation. Rags tried to understand what these people in white smocks wanted from him, what the purpose of their kindness and generosity was. Was there some new unpleasantness lying in wait for him?

Once Vasily stopped at his cage longer than usual. After standing silently for a while, the doctor resolutely opened the door.

"Come, Snapper!"

Rags was delighted. Sparks flashed in his dark eyes. At last he was getting out of this tiresome cage! But he showed no sign of his joy. He got up slowly and unhurriedly followed this strange person who forgot to punish him. Without raising his head he followed those black heels down the long corridor, all the while acquainting himself with the house. At first the sharp smell of floor wax tickled his nose, then a warm pleasant wave of food smells from the kitchen struck him, then he smelled the medicine chest.

They entered a room which had no particular smells, but the dog picked up a faint trace of machine oil. Along the wall stood black and white boxes. Rags sniffed at them all in turn, touching the pleasantly cold metal with his nose.

He heard a droning sound and stopped. A little box was buzzing, and the man pressed it to one cheek and then to the other. It was the first time Rags saw this strange thing.

"You don't object, Snapper, if I shave myself?" asked Vasily, noticing the attentive glance. "First get acquainted with the electric razor. And then with the other mechanisms."

When Vasily finished shaving, he wound up the cord and put the shaver in his pocket. Then he went over to a big black chest and pressed

a button with his finger. "*Grrr-r-r*," the box began to growl, and the dog retreated, staring at it attentively.

Rags' long muzzle appeared shorter in his fierce concentration, and the fur on his neck stood on end. From experience the dog knew that anything which growls and buzzes might leap forward and run into him.

No sooner did that motor stop than Vasily turned on another. This one puffed like an old tired-out locomotive. "*Puff-puff, puff-puff*," the pump complained about the boring work it had to do, about having to circulate the oil in its system all its life long. "*Puh-h*," grumbled the pump for the last time and was silent.

Rags sat in the middle of the room and blinked.

"You'll have to get used to it, Snapper," said Vasily. "You'll have a lot to do with machines."

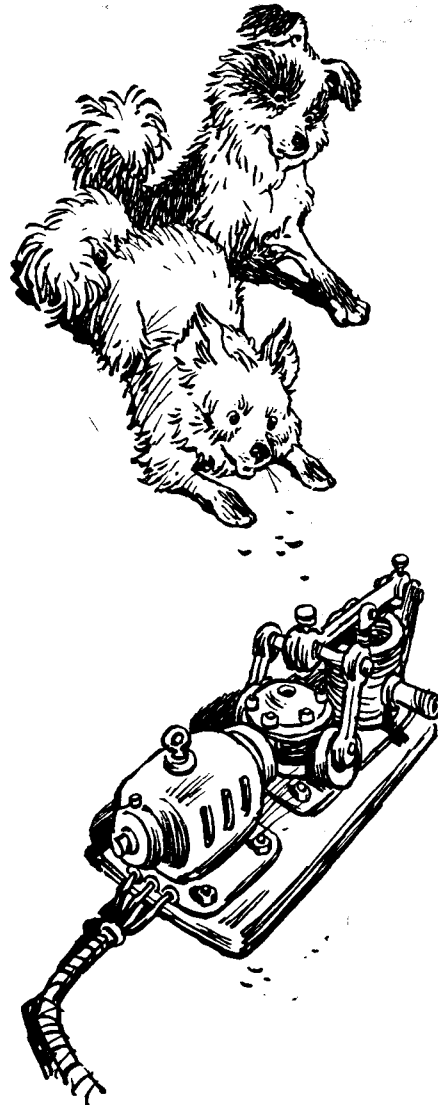
He went over to a light-coloured enamelled box and turned it on. A piercing wail sent the dog flying to the door. The wail broke off immediately, and in the ensuing silence a calm voice said:

"Don't be afraid! The main thing is not to be afraid. You're a bold fellow. It's not frightening."

Rags sat down with his back to the door and fastened his intelligent eyes on the man's face. The man smiled, thinking, "this chap is no coward".

The doctor again went to the box. This time the dog did not move a muscle and patiently listened to the horrid wail.

"That's enough for today," the man said, and Rags made the return trip behind the black shoes. His ears still rang, so he paid no attention to the smells in the corridor.





Snapper's neighbours were also taken to this same room. Some remained calm, some began to bark, and some were frightened even by the peaceable pump. But gradually, after several performances, they all got used to the noises.

Later the future sky scouts were put one by one into cages. The size of the cage got smaller every day. The final one was so small that the grating touched the dog's sides and his black nose button could touch the cold metal.

The dogs thought it a stupid game, but it went on for many days. The doctors thought it was an important experiment and called it "the limitation of freedom".

Try putting a dog in a suitcase, and he'll raise such a noise that you'll run out of the house. And when you infringe on the liberty of yesterday's stray dogs, you have to be even more careful. The cage taught the strays: this isn't a square, nor a street, but your home. The next cage was still smaller, and they learned all over again: this isn't the street, nor an archway, nor yesterday's home, it's your new home. And be quiet!

Habits, as everybody knows, are formed with time. For instance, the assistants would tie Duffer to a metal tray, similar to a baby scales, with a piece of wire, and she would immediately bite it through. They would gently put her back and tie her down again. And again she would bite through the wire, wagging her tail in a friendly way.

Who would win? Who was stubborn?

At last came the day when Duffer was content to lie tied up, and did not use her teeth on the wire.

It was now possible to get down to real work. The professor called the doctors together. Their

short conference was reminiscent of a meeting of commanders before a battle. Each knew his task, but once again defined it, listening to the orders of the chief, so that there would be no slip-up in the crucial experiment.

"I believe," the professor said, "the designers will very soon tell us that the spaceship is ready. But nobody will go up without our permission. We are planning new flights with animals on board. Five dangers await our scouts. First, vibration from the engines. Second, the crushing forces of acceleration and deceleration. Third, weightlessness. Fourth, the absence of atmosphere at great altitudes. Fifth and last, the dangerous radiation in outer space. These are the five invisible foes of the cosmonauts, and we must determine exactly how they act on the organism. Beginning tomorrow, we must prepare the dogs for the coming flights. Let them experience everything possible here."

NOW WE BEGIN

That morning soft white snow fell slowly from the sky. Vasily walked along the cages and talked to the dogs longer than usual. Stopping near Snapper, he asked affectionately:

"How do you feel? I see, I see by the ears: good! you like winter, Snapper? Today we're beginning! We're beginning!" he repeated, ruffling his hair. "Snapper, Boy, Duffer, come with me!"

That morning, the morning of the first snow, the door of the cage opened wide for Snapper, letting him into a new, difficult, but joyous world.

Valya dressed the dogs in little shirts and panties of heavy greenish material. She felt very



pleased with herself as she fastened the buckles, for she had designed and sewn the little suits herself. The dogs now looked like parachutists and walked about uncertainly with their legs spread wide apart.

"Now you really are test-dogs!" Valya said with satisfaction.

The dogs were put on metal trays and fastened down with more straps. Under their clothing were hidden little instruments, called transducers. They were very simple instruments and consisted of a tiny paper packet with a wire spiral in it or a thin rubber tube filled with coal dust. But whether wire and paper or a tube with coal dust, it was a sensitive instrument, which caught the faintest electric current coming from the heart or the muscles, and transmitted it to an oscilloscope screen. When the machine was turned on, the tray with the dog began to shake and a green zigzagging line appeared on the screen. Along a strip of film ran a merry ray of light, tracing out the jagged line and reproducing the data on the pulse, the breathing and the blood pressure reported by the transducer. It was a very sensitive device, this transducer.

You cannot see the grass grow even with the help of a microscope. But with a transducer you can. A small piece of thin wire, fastened to a blade of grass, stretches imperceptibly, but the electric current feels it. The hand of the instrument oscillates, giving the measurement in millionths of an inch.

Snapper's tray began trembling and shaking. The dog bared his teeth, laid back his ears, tensed under the vibration. Vasily was looking at the instruments at that moment and did not notice how frightened Snapper was.

"Now darling, lie still. Take it easy," Valya whispered sympathetically.

Though she could not be heard above the roar of the motor, Snapper relaxed a little. He made no attempt to jump off the shaking tray because he had been taught to lie quietly.

But the transducers showed that Snapper's pulse was beating faster, and the doctors noticed the disturbance of the little green lightning on the screen.

Like a faithful watch-dog lying on the doorstep of a house Snapper patiently endured everything. When finally the jolting stopped and they unfastened all the straps and wires, he lay on the floor with his tongue hanging out. After a short rest he jumped to his feet as if nothing had happened.

"Stout fellow!" Valya praised him and put a candy in his mouth.

But Duffer whined pitifully on the shaking tray and afterwards trembled for a long time. Only a lump of sugar restored her spirits.

Boy breathed heavily after the experiment and looked at everyone with surprise in his bulging eyes.

"You know what he's thinking now?" Vasily asked, a sly light twinkling in his eyes. "He would be glad to confess that yesterday he pinched a bolt. He regretted his action long ago and had been prepared to accept punishment. But he certainly had not expected such a shaking-up for an ordinary bolt."

Everyone laughed, but the professor said, "Just the same, enemy No. 1, vibration, or Boy's shaking-up, is the cosmonaut's weakest enemy. To jet plane pilots it's a much more serious enemy. It's called flutter. The wings of the plane begin to tremble as if they're made of plywood. The pilot is tossed around in the cabin. The plane falls to pieces. . . . In a rocket, vibration doesn't spell disaster, one has only to get used to it."

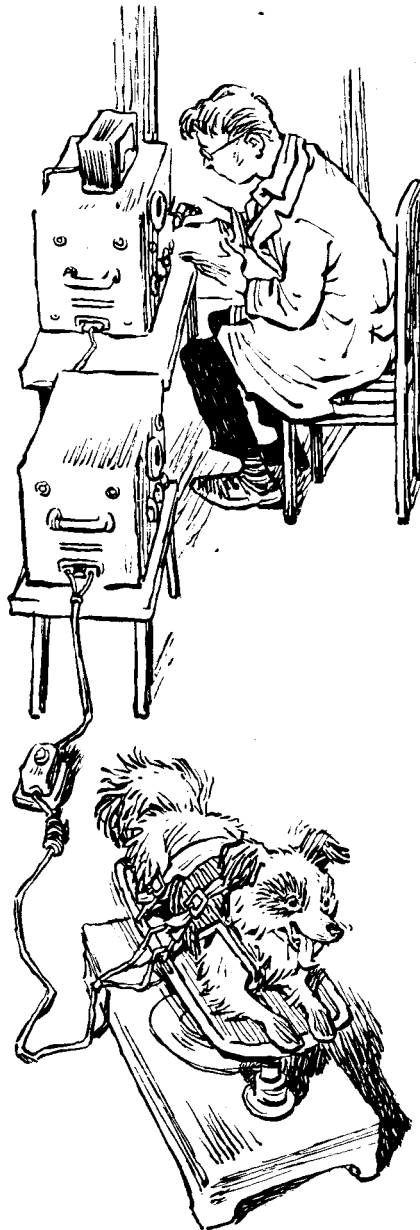
They trained every day. The machine shook them thoroughly. The dogs lay quietly, strapped down, with their moist tongues lolling and trembling slightly.

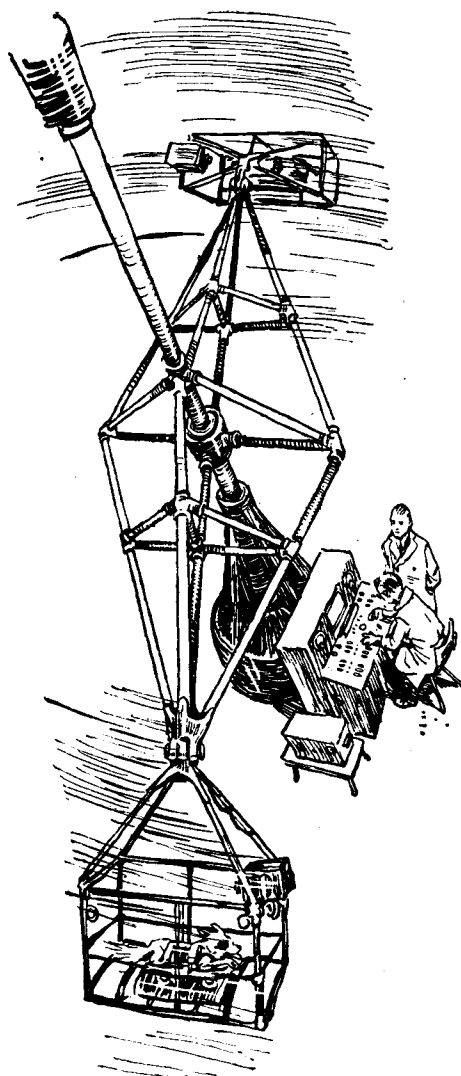
Vasily watched the screen and was satisfied with the mysterious leaping of the green line.

And while the motors hummed and buzzed, Valya sang softly to herself and thought about the transducers. They were now vibrating together with Snapper, but later they would fly with him in a rocket and relate all the feelings and sufferings of the little traveller better than a live witness.

"A football doctor is on the field. A ship's doctor is on board ship. A surgeon is with his patient. But the space doctor is with the instruments," Valya said, imitating Vasily's voice. She sighed, "What about me? I sew pants and shirts, dress and undress dogs. That doesn't bring me closer to any discoveries."

Several days later the dogs were taken into





a round hall. In the centre stood a machine very much like a merry-go-round: a post supported a frame, from which hung two cabins, one on either side. The dogs were to be acquainted with a new phenomenon. The machine was called a centrifuge. It turned round faster and faster, artificially producing the force of gravity.

Dr. Dronov, who was in charge of this machine, and his assistant Zina placed Snapper, who was strapped to his tray, into the cradle-like cabin and closed the door.

"Lie quietly. And don't wag your tail," the doctor ordered.

The motor roared, the cabin swayed and got under way. The walls moved toward the dog and started rushing past him, gradually melting into one continuous line. The wind blew his fur, his nose grew cold, and it seemed to him that he could not move his head because the wind was pressing it down. As it flew round the cabin gradually rose higher, heeling over on its side. From under the machine where the doctor and his assistant sat by the television set and the instruments, it seemed as if the cabin were gliding round on the walls, like a circus motorcyclist who rides his machine on the inside walls of a globe.

The faster the cabin flew, the more strongly the unseen monster pressed the dog to the tray. His weight increased steadily. It was as if eleven-pound Snapper were turned into a big mongrel, then into a setter and then into an Alsatian. But he did not get any bigger in size; on the contrary he became smaller. He was being pressed down by the force of stress.

Dr. Dronov saw from the instruments that Snapper's weight had already increased seven-

fold. The television screen showed a thin little face, indicating that his blood had become as heavy as lead. Oh, how hard it was for his heart to beat! It was as if it, too, were made of lead.

The engine was turned off, but the frame went on rotating. The dog felt an unusual lightness, as if he were floating on air. He did not notice when the cabin stopped.

"Alive?" joked Dr. Dronov, looking into the cabin.

Alive! But look at him.... He was still breathing rapidly, blinking confusedly, and had drooled a whole puddle of saliva.

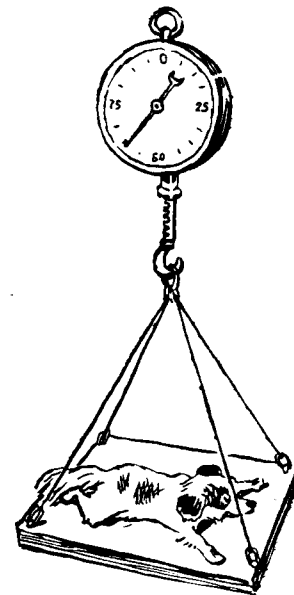
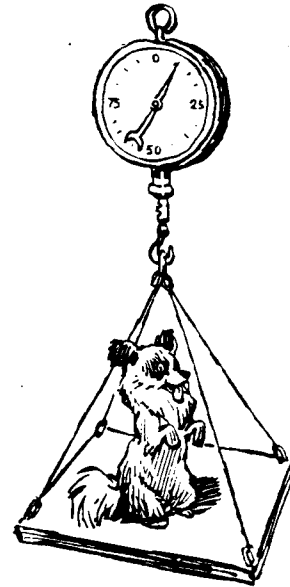
"Good for you!" the doctor said, petting the dog's heaving sides. "That's what it means to be a mongrel and to have experienced all kinds of things in life! A poodle would not have withstood it. I know a poodle," Dronov continued, talking to the dog and inspecting him carefully. "He is intelligent, really talented. But all his talent is wasted on little things, like bringing his master's slippers. He would never have stood the centrifuge."

"What about Snapper? Will he stand it tomorrow?" Zina asked.

"I'm quite sure he will."

The next day the invisible demon was angrier. It was harder for Snapper. He was put in the cabin with his head to the front, so that the weight fell first of all on his head. The blood rushed to his feet. Everything went dark before his eyes; Snapper lost consciousness.

The next time he flew backwards. Instead of a black film over his eyes, there was a red one, because the blood rushed to his head. The reader of course knows that this happens because every cell in the body is pushed into its neigh-



hour, and blood, being the most easily moved, is the first to give in to the powerful force of stress.

Dr. Dronov knew how Snapper was feeling. He knew about the black and the red film, both from his own experience and from the records of the accelerograph. This instrument drew an uneven line on paper showing the stress (that is, the increase in weight) and how many seconds or minutes each stage lasted.

Dr. Dronov also knew that it was better when the invisible forces attacked the chest or the back, and that flight with the feet or head first was the most unpleasant and led to unconsciousness.

Nevertheless, the doctor put the dog in his machine in every conceivable position and sang a little song as he watched him on the television screen.

*Lumpty-diddley,
Lumpty-dee,
Off upon a trip are we.
Our foe's the worst that's ever been.
Why? Because he can't be seen.*

Zina sat beside Dr. Dronov, making notes in the training journal. But the most accurate records were kept by the instruments themselves. They recorded on tape all the stresses attacking the dogs in the chest, in the side, and in the back. Zina did not ask Dr. Dronov why hundreds of feet of film were used up on all these uneven lines. She knew Dr. Dronov wanted to compare records. When the rocket would take off, new records would show how the dogs felt. Then by comparing the records, Dr. Dronov would find out what invisible forces attack the astronaut in flight.

*Lumpty-diddley,
Lumpty-dee,*

sang the doctor. Zina looked at him with pride. People like him, doctors and scientists, had made thousands and thousands of tests and experiments. The centrifuge whirled round not only dogs, but hardened men, flyers. They easily took up to twelve accelerations in the course of from five to ten minutes. They assumed a comfortable position; that is, the stress hit them in the chest or in the back. And one tester—Zina heard about it during one of the professor's lectures—put on a diving suit and immersed himself in a tank filled with water. The tank was fastened to the centrifuge, and for a few seconds the man endured a thirtyfold increase in weight!

In his free time Dr. Dronov told his assistant about the monkeys, frogs, fish in aquariums and even micro-organisms, which travelled round in the centrifuge.

The monkeys' reaction was similar to that of people. The little fish in the aquarium were rotated at such speed that they weighed more than large pike. The centrifuge went even faster with a tank full of swimming frogs, and the swimmers weighed more than three hundred pounds each. The cabin whirled round like mad with micro-organisms. Their weight increased by two hundred thousand times! But they remained unharmed because they were in water.

"Strange as it may seem," concluded the doctor, "water protects organisms from the invisible force of acceleration better than any armour. This means that it should be possible to invent a costume or a chamber protecting man by means of water from the shocks and pressure of stress. Tsiolkovsky wrote about this long ago. But until such things are invented, our four-footed friends must be trained to be prepared for cosmic surprises."

Every day Snapper was transformed into a heavy dog and back into himself. He did not understand why this was done, but he patiently submitted himself to these tests. When the cabin began to revolve, he obediently laid his head on his paws and did not resist the pressure of the invisible forces. In the end, he seemed to say, you get used to anything.

Later Snapper underwent tests in a small hermetically sealed cabin, preparing himself to meet the third enemy in space, the emptiness of the universe. He saw no one for several days at a time and got used to being alone. His meals were served him from an automatic feeder.

When he was returned to his cage, he relived all these new experiences. In his sleep, he jerked his feet and ears, barked faintly.





Valya, who was on the night shift, would go over to his cage, and immediately his ears, first one and then the other, would prick up, turning towards her. His tail woke up and quietly beat the floor. Opening his eyes, Snapper met her familiar gaze.

Valya petted the dog through the bars, and after a while went away. And then Snapper slept peacefully till morning.

AN UNSUCCESSFUL TRIP

The evenings were dull. The dogs stretched themselves, flexing their springy paws. Several timid yawns came from the cages. After a minute they were all yawning openly. One began to yap, one sneezed, and another whined a quiet plaintive little song.

But as soon as the doctor on duty came in, the mood changed. The man started interesting conversations, joked, and treated them to lumps of sugar.

The funniest conversations were with Boy. He sat with his head cocked to one side and looked at the doctor with a rapt expression.

"Now, look here, Boy!" the doctor said. "What's the idea?"

"What?" asked Boy's clear eyes.

"Yesterday not a single reproof. You rode the centrifuge like a hero!"

"Didn't I," Boy agreed, proudly raising his black nose.

"But today? You jumped on the table and made a puddle over all my papers as soon as you came into the lab."

"Who, me?" Boy drew back, his whole body expressing extreme amazement.

"Was it necessary to jump on the table?"

"Of course not!" the dog's tail wagged understandingly.

"I know a poodle," continued the doctor, "a very intelligent dog. He wouldn't think of taking such liberties. He lives in an ordinary apartment. But you live in an institute and should have known better."

The more reproachful the tone, the more Boy blinked. He got up slowly, went into the corner and stood there forlornly, his tail between his legs.

Imperceptibly the evening drew to a close. The dogs fell asleep.

Every night snow fell heavily, and the snowdrifts grew and grew, reaching up to the windows. There were only a few days left before the New Year would climb over the snowbanks and step into the room.

One day, instead of training, Snapper and two others, Spotty and Boy, were allowed to run about in the yard. Then the dogs were weighed, blood samples were taken for analysis, and X-ray pictures were taken of their chests. That had happened before, but now a special solemnity was felt in the actions of the doctors.

The event, which the Institute had so long prepared for, was about to take place.

"Valya, check Spotty's blood again. Why does it deviate from normal?" Vasily said worriedly.

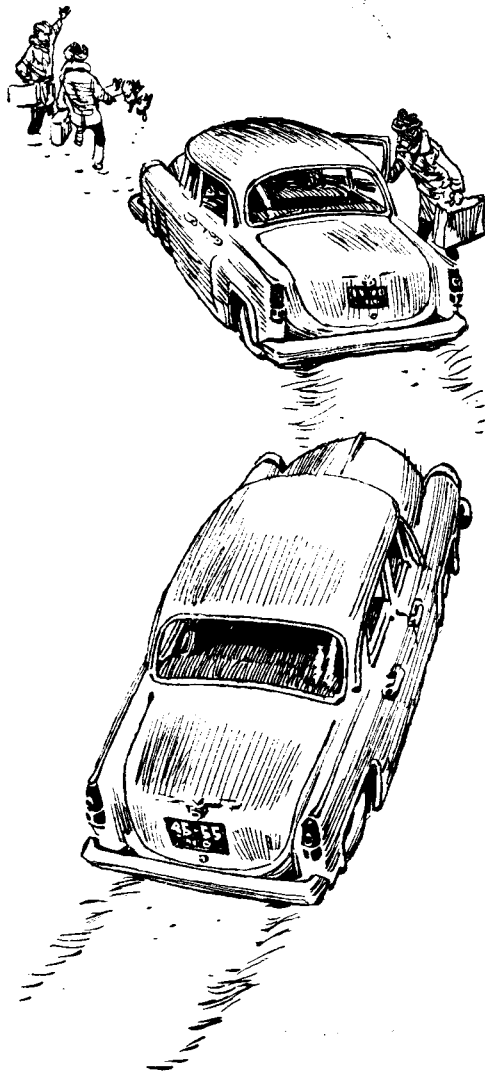
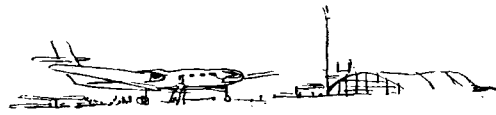
"Very strange," Valya replied. "High-caloric diet, untroubled sleep. I can't account for it."

Was Spotty ill?

Vasily examined the dog, walked up and down the room, but could not figure it out.

"I've got it!" Valya cried half an hour later. "Duffer bit him. Zina gave Spotty a piece of candy, and Duffer wanted to take it away. It's nothing much, tomorrow it'll all be over!"





Vasily shook his head reproachfully. But Valya was glad Spotty was not ill and that the mysterious cause of his trouble was so simple.

That night Jack Frost painted fantastic pictures on the windows.

In the morning Vasily, dressed in a short fur coat, a fluffy fur hat and felt boots, put leashes on Snapper, Spotty and Boy and led them out into the court. There three doctors awaited them. The whole staff was gathered at the windows. Valya, Zina, Dr. Dronov, the professor and all the others, whose kind hands had caressed the shaggy little test-dogs, were seeing them off. They waved and shouted out of the ventilation windows.

Two Volgas waited at the gate. Vasily and the dogs sat in one, the doctors in the other. The trip began in complete silence, the kind that descends in such solemn moments. Only the motors purred evenly, sending the cars forward.

When the doors of the Volgas were finally flung open, the four-footed crew was amazed at the open spaces. The dogs looked round and could not quite understand what had happened to all the houses, streets and, in general, the whole town. In front of them lay a flat snowy field, on which sat great winged machines.

"They are seeing an airplane for the first time," Vasily thought uneasily. "And this field... Maybe they'll feel like stray dogs again? Or begin to bark?"

They did not bark. They went quietly to the plane and ran lightly up the gangway.

The passengers were in their seats—they were rocket engineers, mechanics, and designers—and they greeted Snapper, Spotty and Boy so heartily that the dogs were quite overcome and retreated as fast as possible behind Vasily's legs, where they lay down. The motors roared, the

plane rocked and slowly started up. Then it stopped, waited and rushed forward, gathering speed and smoothly, almost imperceptibly for the passengers, became airborne.

Two hours later it made an emergency landing, because the radio said there was a snow-storm ahead. The travellers and the crew put up at the small hotel in the airport. Soon a whirlwind of white flakes swirled round the hotel, too, screening from view the airfield and the rest of the world.

In the morning, too, the view from the windows showed only dancing snowflakes. It was the 31st of December. They resigned themselves to spending New Year's in the hotel, when suddenly the news came through that the launching of the rocket had been put off because of the bad weather.

They could return to Moscow by train or, after the storm subsided, by plane. After looking out of the window, the Muscovites said, "We'll go by train, of course." And they began to pack their things.

"What shall we do?" Vasily consulted Spotty, Snapper and Boy. "At such an hour the snack counter is closed, and I'm starved. Leave the suitcase here, take you with me, and run over to the cafe? No, they won't let you in. Leave you here, and rush over and eat? No, I won't have time to come back here before the train. . . . I think I'll take the suitcase and we'll all go to the cafe! Come what may. . . ."

In the cafe, the porter in the vestibule looked suspiciously at the dogs, but they were on leash and he said nothing, accepting the suitcase for safe keeping.

The waitress came up to the table and almost tripped on the dogs. She gasped and promptly squatted down and petted all three of them: "Oh, you darlings!"

She brought Vasily soup in a china soup-plate and for the "darlings" in tin plates. The former was served on the table and the latter on the floor. The oatmeal soup in the tin dishes was, as it should be, cold. Moreover, the understanding cook had added a few bones from the goulash. What a fine dinner it was!

They barely made it to the train. They ran up to the eighth car. The conductor checked the ticket, returned it, and sternly said to the passenger with the dogs, "Young man, you can't take three dogs. According to the rules, only two dogs are allowed to a car. I can do nothing about it."

Even in such a moment, Vasily, knowing that the train was leaving in two minutes, did not lose his temper but answered the conductor politely, "I beg your pardon, but I can't divide myself in two. We'll have to break the rules."

Saying this, he threw in his suitcase and set Boy in, then Spotty and then Snapper. The train began to move.



The car was without compartments and jammed full of people. As the young man with the three dogs made his way to his seat, a hum of delight arose in his wake. Then suddenly so many children appeared that it seemed they must have crawled out of all the suitcases. And no sooner had Vasily made himself comfortable than an old fellow, seeing the felt boots and fur jacket on his neighbour, began to question him.

"You're a hunter, I suppose? But why, if you'll pardon me, with mongrels? Or can you use them against bears? Do you get the same results as with huskies?"

Willy-nilly, Vasily had to spin a hunter's yarn, interrupting it from time to time to take the dogs out onto the platform between the cars. He could not very well tell the old man that these were not ordinary mongrels, but cosmonauts. Nobody would believe that such important personages would be taken in an ordinary train.

The story of the hunt was so long that it lasted all the way to Moscow.

At the station Vasily looked at his watch and was flustered to see that there was only half an hour left till midnight.

"We'll celebrate at my house!" he announced to his companions. "I'll feed you on sausages and put you to bed."

They burst into the apartment along with the New Year, and everyone was overjoyed—Vasily's wife and his mother and his eight-year-old son Sasha. Vasily kissed them and wished them a Happy New Year and said, "How nice the fir-tree smells!"

As far as Snapper, Boy and Spotty were concerned, they thought that the sausages smelled best of all. Soon they were treated to some. After

they had eaten, they played with Sasha and forgot all about the train.

In the morning Vasily took the dogs back to the Institute. Their cages were occupied by new stray dogs brought from the veterinary station. The travellers were put into a separate room, all three in one cage. This was not quite comfortable. Besides, there was an empty cage in this room.

But Vasily did not think of opening it. He stood silently in front of it, gazing at the familiar plate on the door, and went away.

On the empty cage was a sign: "Here lived LAIKA".

HERE LIVED LAIKA

To tell the story of the empty cage, we must go back to the not too distant past, to the year 1957.

October 3, 1957 was for the world an ordinary weekday. School children sat at their desks. Workers stood at the lathes. Flyers flew faster than sound. And no one suspected when he went to bed that tomorrow he would wake up in a new era.

But on the morning of October 4, the world was thrilled by the news that a silver ball was flying round the earth. Though it was not very big, this first cosmic missile—everyone knew that it weighed 234 pounds and had a diameter of 22 inches—people understood how important this event was. Like the taming of fire. Like the birth of the steam engine. Like the first flight of an airplane. Like the discovery of electricity or atomic energy.

Scientists throughout the world congratulated





their Soviet colleagues. The workers were proud: their hands had made the missile. Flyers envied it its cosmic velocity. It was a fantastic velocity—five miles a second. And school children, sitting at their desks, dreamed of flying into space.

The road to the stars was open for man! It extended into the infinite Universe. And it all began in the country of the red five-pointed star.

"A new star!" "A flying fantasy!" "The Soviet moon!"

In all countries newspapers were coining phrases to describe the sensation. They all decided on one name: Sputnik! The Russian word sounded well. Like the word "tovarishch"!

Letters poured in.

"Moscow. Sputnik. I want to fly to the cosmos."

"Moscow. Sputnik. Please include me in the list of cosmonauts."

"Moscow. Sputnik. I am prepared to give my life for the progress of science."

Letters like these came from flyers, students, and Young Pioneers. Thousands of people were eager to conquer outer space.

At this time in a house in a quiet street in Moscow, ten test-dogs were in training. One of them would fly in the new sputnik. Ten obedient dogs with suits belted on, whirled round in the centrifuge cabin, listened to noises, sat in tight cages, patiently bore all the discomforts and even enjoyed life—in a word, they lived through all that later fell to the lot of Snapper and our other heroes.

Of the ten, one was chosen—Laika.

Why they named her that, no one could say. Laika means "Barker" but Laika never barked at anyone. She gave voice only once, on a dark

narrow staircase. She was going upstairs, and a girl was running down. Laika moved over, giving her room, but the girl did not notice her and stepped on her paw. Laika gave a little squeak and frightened the girl, who screamed and frightened the dog. For the first time in her life, Laika expressed herself in full voice.

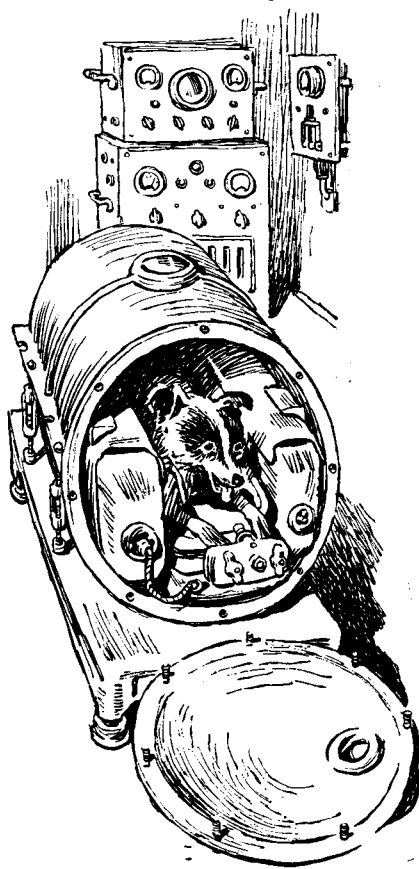
The young mongrel, with thin legs and a naive wondering expression, turned out to be the most hardy of all. Dr. Dronov frowned and shook his head as he started his machine; he was calling up mighty forces and did not know whether the dog would be able to stand them. Space medicine could not tell him anything. No one had conducted such experiments before; no one had prepared passengers for sputniks.

But Laika withstood it all, to the last revolution of the machine. Dr. Dronov opened the door and gently took the dog in his arms, wiping her muzzle with his handkerchief. Laika's drooping ears rose. No, nothing at all could break the spirit of this little dog with pointed ears!

"It is necessary to lie down at the take-off," concluded Dr. Dronov. "So that the force of gravity attacks the chest and the back. When the sputnik goes into orbit everything will become weightless. Then the dog will push on the floor and will sit or stand."

"Lie down, sit, stand," Vasily repeated. "And all in a tiny cabin. We'll need special clothing, which will hold like a harness but also permit movement."

"Food! Don't forget we have to feed her!" Seryozha, the institute's mechanic, said. "How will we feed her when everything will be weightless? You can't pour water into her dish—it'll run off. You put down some sausage and it



floats off! How can she catch it when her clothing holds her down and she can't move?"

Everybody—the doctors, the scientists, and the assistants—turned inventor. They cut and sewed little suits. They calculated how much a four-footed tester eats a day, how much energy he expends. They prepared various meals and tried them on the dogs. The menu they eventually compiled consisted of hard crackers, meat paste, beef fat and water. But the problem was how to prevent cosmic meals from floating about the cabin.

Somebody thought of a gelatinous substance. It is called agar-agar and comes from red seaweed.

Powdered agar-agar was a wonderful find. It stuck together all the substances and water into a nourishing jelly. It was found that the jellied mixture did not fall out of a bowl. Besides, it was tasty and nourishing.

A cylindrical cabin with a round window was made for Laika at the factory. It had room for the observation instruments, the automatic feeder with a stock of jellyfood, chemicals which produced oxygen and absorbed carbon-dioxide, and a special seat for the passenger. In this seat Laika in her light costume could move forward and backward, sit, lie or stand. The result was a small tightly-sealed container that was like a big can with a round lid. In this little house, Laika did not feel the terrible emptiness of space.

In her training Laika sat in her cabin day after day. The feeder fed her, the chemicals provided oxygen, and the metal container preserved complete silence. That was all!

The doctors, naturally, looked into the porthole, from time to time, but Laika did not see them. She was used to being alone and behaved very well. When dinner-time came along she looked at the empty feeding dish and licked her lips.

Here on earth everything was fine. But in space?

The doctors were worried about the state of weightlessness more than about anything else. After the invisible forces of gravity had given the cosmonaut a bad time she would suddenly lose weight completely and float in air. How would her heart work? How would it bear such a strange and sudden change?

Some foreign scientists made the gloomy forecast that in a state of weightlessness life would continue only a few minutes. The blood, they said, would lose weight, would cease to push on the walls of the blood vessels, and the heart would stop.

The question that worried space doctors all over the world was whether these scientists were right. It was too bad that in the laboratory it was impossible to create a state of weightlessness. The only place on earth where a body has no

weight is the very centre of the globe. There the pull of gravity is the same from all sides and neutralises itself. But how can one get there? It was impossible to dig a tunnel almost four thousand miles deep.

When jet planes shoot up into the air, they climb up very high and then glide down, describing a huge arc, like a thrown stone. This is called parabolic flight, and at its upper limit, when the plane tops the peak, so to say, the pilot experiences a moment of weightlessness. Two forces act at once on him: a centrifugal force tries to send him farther from the earth, and the earth's force of gravity pulls him down. These forces neutralise each other, and man becomes weightless and can sit in the air without any support for several seconds.

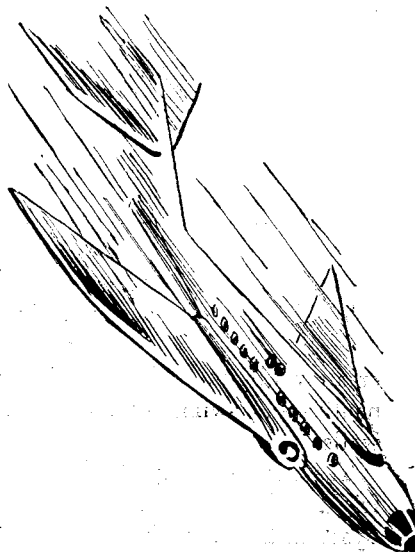
Flyers described this sensation in various ways. Some felt nausea and dizziness, as if they were seasick. Others lost control of their arms and legs. Still others imagined they were lying in a hammock; they liked it very much and said weightlessness was better for resting than a sanatorium.

But maybe the latter were mistaken? Maybe they just did not feel the danger?

Then rockets were sent up into the sky. Their first passengers were turtles, rats, mice and dogs, who also achieved weightlessness in parabolic flight, not merely for several seconds but for several minutes. The animals returned to earth by parachute safe and unharmed.

They were weightless for three, five, ten minutes. But what if it lasted for hours? Or days?

Of course, Dr. Dronov, the professor, Vasily and the others who prepared Laika for her flight, hoped that the heart of the astronaut would con-



tinue to beat for hours and for days. But here they had other worries. How would Laika behave when she lost contact with the floor? Even the king of beasts, the lion, grows rigid with fear when he is put on a swing in the circus. He can swing right over the heads of the spectators and it is not dangerous because the lion is so frightened he cannot move. Then there was the case of the tiger which, when transported to a Zoo by plane, lost his coat of fur from shock.

Would Laika be as severely frightened? Would she move about and eat? All this was a puzzle to the doctors.

The multistage rocket—a whole train of rockets—was launched with Laika on board.

On November 3, 1957, people first heard about the brave little dog. They looked at her portrait in the newspapers and were both happy and sad. They were happy to see the first dog-astronaut and sad because they knew that the astronaut would not come back.

Laika, dear faithful Laika, how you cheered up the scientists of the whole world. The faint sound of your heart, coming from a height of a thousand miles drowned out for them all other sounds.

And on the tape of the recorder a pattern was traced resembling the sky-line of a city, with the spires of tall buildings towering above it.



The heart of the passenger in space beat and went on beating!

In the institute these were days of celebration. Out in space flew the first creature who might be described by two ancient Greek words: Cosmos—universe; nautika—to swim. Swimmer in the universe. Cosmonaut! He went out of these walls.

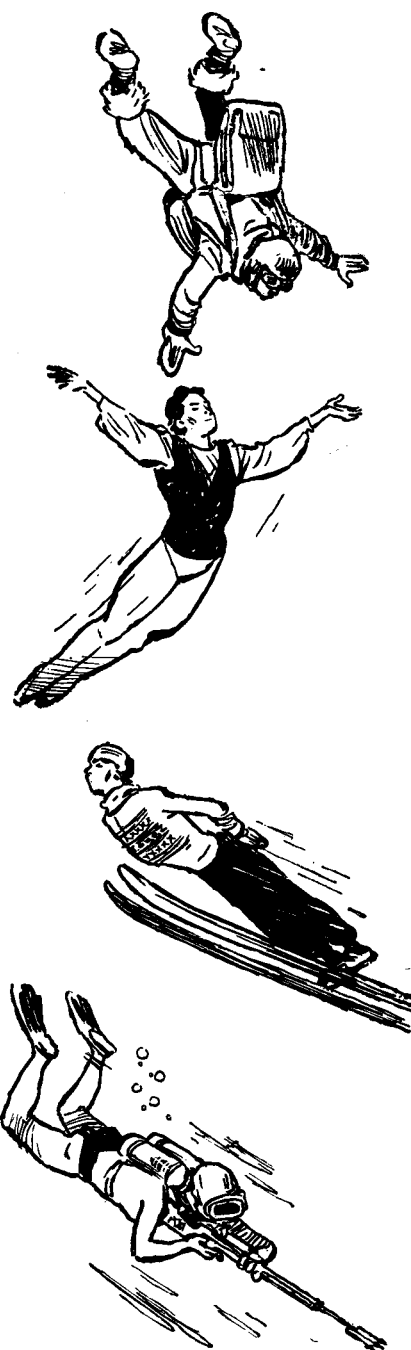
The telemetric tape told the doctors how the rocket roared and how Laika was frightened by the noise. (Not only Laika; even experienced flyers sometimes get upset on the launching pads from the thunder of the engines.) For a while Laika kept turning her head, then an enormous force pressed her to the floor and her heart beat three times faster. The train of rockets travelled through the atmos-

phere and then suddenly everything was quiet, and the dog was up there in the unmoving void.

It was a good thing Dr. Dronov had trained her to accept the leaden-like weight of the body. Just as after the rides on the centrifuge, Laika's chest expanded and her heart gradually calmed down. And though on earth she had never been in such a strange condition of lightness, she did not get frightened. After resting, she looked round. Then her paws pushed her body away from the floor, and she took her first steps in weightlessness.

The doctors definitely settled the vexing question: weightlessness was not dangerous to life! Of course, it was harder for a man than for Laika to get used to the fact that there is no up and no down and no support underfoot. Many people experience vertigo when they stand on the edge of a precipice; they feel dizzy at the mere thought that they might fall. But man is the master of his emotions, feelings and habits. A ballet dancer has marvellous control over his body; a skier flies confidently from the ski chute; an underwater swimmer chases fish with harpoon in hand; a flyer is not afraid of great heights. And man can learn to swim in air! He can learn to use his arms and legs, which become unusually strong, can learn to drink from soft plastic bottles, pressing out the water, and can even walk upside-down, like a fly on the ceiling, with magnetic shoes.

Now man can fly to the moon: perhaps a sanatorium for heart patients will be opened in space. All this was made possible by Laika's discoveries.



She lived in the sputnik for seven days. On the eighth day the oxygen ended....

And in the institute a cage remained empty.

They put up a plate: "Here lived LAIKA". No other dog was allowed in that cage.

It was a reminder that the next cosmonaut must be returned to earth.

THE HELPFUL PENCIL

Winter had barricaded Borya's street with snow-banks. Waking up in the morning, he would hear the janitors scraping the pavement with their shovels.

In the field beyond the house, a skating-rink had been cleared, and in the very centre, where once two dare-devils had set off a rocket, the house superintendent had put up a fir-tree. Borya once saw with his own eyes how Gena and Lyuba skated round it, holding hands. Gena cut a figure eight on one skate. And Lyuba, in a red sweater and cap, also cut a figure eight. Then they stood there talking. Snowflakes were sparkling on Lyuba's cap. The girl was smiling at Genka as if she were a fairy and not merely Lyuba.

Everyone was happy, even the superintendent. He had completely forgotten the incident of the explosion. But there remained in the house silent witnesses of that unhappy affair, which upset Borya more than verbal reproofs. There was the little striped mattress in the corner back of the couch where Rags had slept, and his tin bowl in the kitchen where Borya's mother collected the bones and scraps. Worst of all were the times when they began talking about how affectionate and clever the lost dog had been. Borya could not stand it; he grabbed his cap and left the house without saying a word. He wandered in the streets, inventing hundreds of ways of recovering Rags. Borya was so engrossed in his thoughts that he usually did not notice the approaching darkness and returned home when the great ten-storey building sparkled with lights.

"There it is—big and full of light," Borya sighed, looking at the windows. "Maybe two thousand people live in it, maybe even more. But nobody cares at all that Rags is freezing somewhere. And Genka? I don't want to think of him. He's probably sitting there, designing a rocket. Or looking through magazines with his father. The Karatovs get so many magazines you can't even remember all their names."

Not so very long ago Borya had envied Gena because his father was a journalist and Borya's was an ordinary turner. But after the whole of 6A visited

"the Ball" (that was how his father's friends referred to their ball-bearing factory) and Borya saw a poster, stretching across the shop, "Smelov is your example!"—his eyes were opened.

That evening, when his father sat down to drink tea as usual from a great flowered cup, Borya sat opposite him and looked at his brows and eyes and nose so intently that the older Smelov grew alarmed.

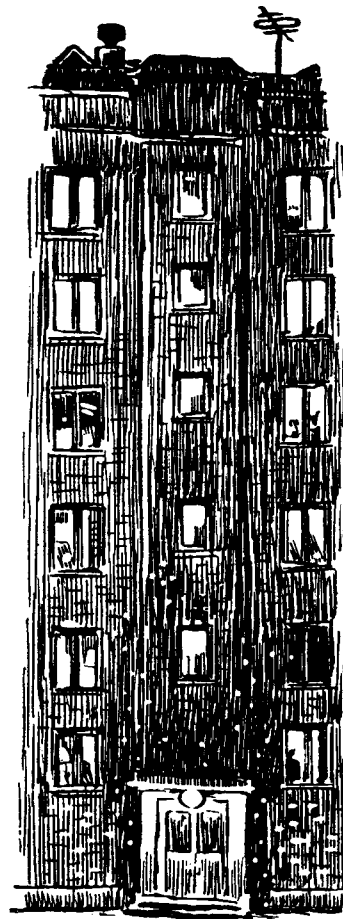
"Why are you staring at me like that?" he said in surprise. "Who do you take me for—Appolo Belvedere? You'd better go to bed."

Borya had gone off to bed with a warm feeling in his heart at the thought that here under the same roof with him lived a man who was an example for others. . . .

"Maybe I should go home and play chess with Dad?" Borya looked at his own window and right away changed his mind. "No, I'll stay out a little longer. The green lamp is lit . . . it means Dad is sitting over his drawings."

When you are alone and sad, thoughts flow continuously. It seems that the houses and fences and street-lamps are all listening to you with attention. Things are excellent company and never interrupt. And if you are observant, they can tell you a thing or two.

The lights in the windows told Borya many stories, sad ones and happy ones. By the reddish light in the second-storey window he could tell if the animal trainer Sofya Lep had returned or if only her old nurse Anfisa was home. Thrifty Anfisa always turned on a weak little lamp, while Sofya Lep liked a bright light. Some trained dogs lived with her, one of whom could say "gosh" and "rot", or so they said. How fine it would be to tell Sofya Lep about



Rags! But each time when she appeared in the entrance with one of her performing dogs, Borya quailed and in a minute the opportunity was lost, as the trainer disappeared round the corner.

On the third floor two apartments with balconies were occupied by a retired general and a famous artist. If the general's light was on and the artist's window was dark, it meant the artist was visiting the general; and if the general's light was off, the artist's orange light was lit.

The artist, Konstantin Rogov, was a very special person. With pencil and colours he had created a good hundred funny little people, who delighted boys and girls, and in this art he outdid even Papa Carlo, who created, as everybody knows, the long-legged Buratino.* Like Papa Carlo, Rogov was generous to his creations, and even the most absurd of them were likeable characters.

In any weather you could see Rogov on his balcony in warm boots, heavy coat and scarf, with field glasses in his hands. Some people, seeing this strange figure, compared it with a scarecrow but immediately regretted their words, because the boys from Rogov's house did not forgive sneering at their artist.

The fact was that the artist was seriously ill, and the doctors forbade him to go out of the house. But from the balcony, as from a captain's bridge he could see far. His field glasses took him through streets and alleyways, giving him glimpses of hundreds of faces, young and old, merry and thoughtful. The artist always had a broad smile, which lit up his pale face and made the kindly sparkle in his eyes more noticeable.

There—he had seen something interesting in the crowd. He held the field glasses with one hand, the other snatched up a sharpened pencil.

Several minutes passed, and on a white sheet of paper he had caught a fawning toady gazing into the mouth of his superior with dog-like devotion. A fashionable young lady, wrapped in a broad bell coat, hurried past on pin-point heels. Bending under the weight of his briefcase, marched a bureaucrat.

Many people, looking at Rogov's pictures, would laugh heartily but then would suddenly quiet down, recognising themselves.

Borya remembered how this morning, when he was going past Rogov's door, he had collided with a tall man, who was choking with laughter. Evidently, he had begun to laugh in the apartment and could not stop. The stranger shook his head, and wiped the tears away. Recovering, he opened his case, looked at the cartoon again, and again went off into peals of laughter.

* Buratino, a character from a popular story by Alexei Tolstoi, is the Russian equivalent of Pinocchio.—*Tr.*

Tortured by curiosity, Borya looked over his shoulder and also laughed out loud, as if an invisible somebody was tickling him inside. The cartoon portrayed a parrot-like dandy.

Rogov's acquaintance winked at Borya and rushed down the stairs. Once outside he stopped a taxi with a wave of his arm. He was in a hurry to get to the newspaper office. On his swiftness depended whether Rogov's cartoon would appear in tomorrow's paper or not. If he made it in time, then thousands—no, millions—of people would be laughing tomorrow at stupid dandyism. And everyone knows that laughter acts like medicine.

"All those people could help find Rags, if Rogov would draw a picture of him!"

This sudden thought took Borya's breath away. He looked up at the brightly illuminated house. In Rogov's studio the light was on. He went up quickly.

"Good evening, young man. What can I do for you?" The grey eyes, with their merry wrinkles, encouraged him, and Borya began rapidly to tell all about Rags and the rocket, right from the doorway. The artist backed into his studio, without interrupting Borya. He motioned his guest along and seated him on a soft couch beside a red plush cat, very much like a real one. He sat opposite at a table heaped with pencils, paper and paints.

"It's a sad story," Rogov nodded understandingly. "Of course, people respond more readily to what is happy and funny. But we'll try it, we'll try it. We'll begin this very minute."

Rogov picked up his pencil. He drew with sweeping, resolute strokes, as if attacking the white field of the paper. Soon he held the album out to Borya.





"Is this like him?"

"Yes, the very image!" Borya said with joy and amazement. In front of him was Rags, his very own Rags! Among hundreds of others, he would recognise his long muzzle, dark affectionate eyes, questioning him, "I'm your friend, are you mine?"

"My most important critic has said it's a good likeness, so now I can begin the cartoon," Rogov said gaily.

"How's that?" Borya was nonplussed. "Why begin? Haven't you already drawn him?"

"No, sonny, it isn't a cartoon yet. It's only a sketch. You'll have to be a little patient."

So Borya sat quietly on the sofa, and Rogov drew. Now he drew more slowly, stopping now and then and smiling about something only known to himself.

When the guest became sure that the artist had forgotten all about him, Rogov suddenly called out to him:

"Well now, critic, look at this!"

The critic went over, took a look, and could not say a word. He was struck dumb. He did not even know whether to be glad or angry.

While he sat there thinking, his ordinary dog Rags had turned into a cosmonaut; he flew in a rocket and the wind blew his ears out like flags. This wasn't so bad, but the cross-eyed rabbits, wolves, squirrels and foxes with bushy tails, who jumped around waving their paws and turning somersaults, how did they get there? Then Borya looked more closely and saw that this chosen society had gathered together to greet Rags. A brown bear had rushed over with a bouquet. Some timid mice, holding each by the tail, had also turned up. And a stupid serious

heron stood flapping her wings, not noticing that the little frog which she had in her haste snatched from the bog was swinging to and fro, holding on to her long legs.

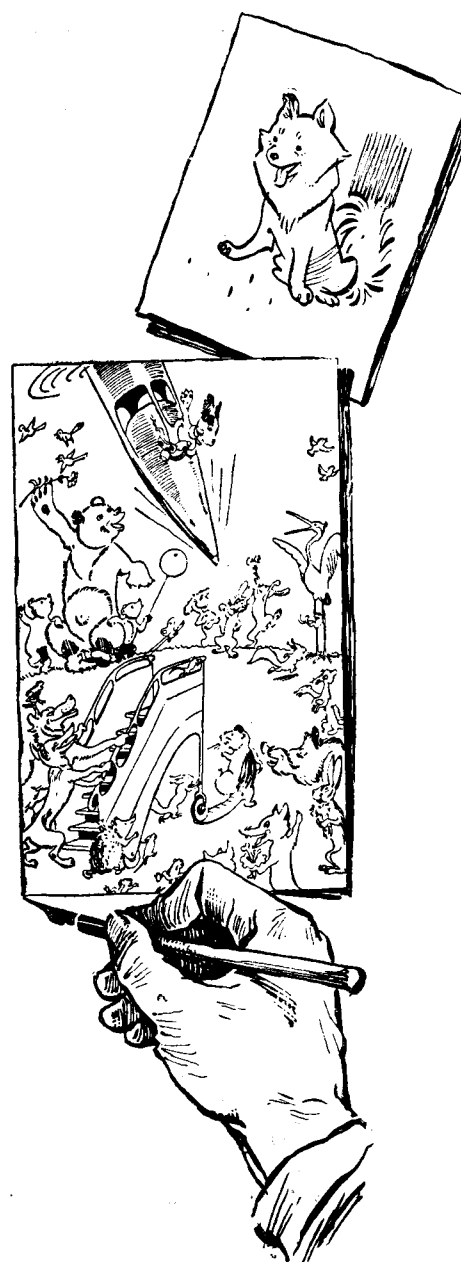
Borya giggled, then checked himself: was this a matter for caricature? He frowned and once again looked at the frog. It was really funny. . . . Borya couldn't help but grin. Rogov, watching him all the time, sighed with relief. . . . It seemed, he had hit the mark.

The main thing was to attract attention to the cartoon. The readers would begin to inspect the picture and of course would read the remarks below. There would be the short story of the lost dog and the request to report to the editorial offices where and when they saw such a dog as Rags.

A week went by. The new picture appeared in the gayest of the children's magazines. Hundreds of letters, plain and airmail, poured into the editor's office. When they were gathered together on the table, the editor took one at random and began to read. "Dear Editor!" wrote with big round letters the owner of a dog in Krasnoprudnaya street. "I want to thank the artist for drawing my Sharik. He can count up to three and I to ten."

The editor gave forth with a meaningful "Hmm" and reached for the next letter. From the envelope fell a photo of a solid valiant-looking bulldog. And though the bulldog did not resemble the thin-muzzled dog drawn by Rogov, the author of the letter was sure the artist had drawn his dog.

After looking through the whole heap of letters, the editor sat for a while with closed eyes. It began to seem to him that Moscow was



teeming with dogs, all looking as alike as two peas. These dogs, certified their owners, pulled children from burning buildings, downed and held burglars, were hardy, brave and devoted—in a word, were capable of flying to the very farthest planet. But not one of them had been picked up off the street; they had all been raised from small puppies. In short, not one of them was Rags.

Borya was told this by Rogov himself. He sat on the same couch, like the first time, next to the red cat.

"That's how it is, sonny. We did not get the response we wanted," Rogov finished his report and smiled guiltily. "Maybe you'd like to have a look at my library?"

"No, thanks, I'll be going," Borya said sadly. Though it was the middle of the day, he wished the artist good night.

Rogov was not surprised. A fellow might say anything when he's upset. . . .

CHLORELLA

Lyuba was convinced she had only to cross the threshold for unusual encounters and adventures to befall her; round the corner merry bells would ring out, and a secret would be disclosed that would amaze and delight her. So when she saw Boris Smelov coming out of the artist's apartment, she said to herself, "It's beginning. . . ." Meaningfully inspecting the door-plate "K.P. Rogov", she turned her appraising gaze on Borya and slyly narrowed her eyes, indicating that she knew everything. But since she did not really know anything, she could only say, "Are you going skating?"

Not deigning her a glance, Borya began to go downstairs.

They went outside in silence. It was Sunday, sunny, with a light frost, with the crunch of skis and the chirping of sparrows. Lyuba was about to say, "That's enough sulking," when she saw Genka Karatov and stopped. The inventor looked pale as though he had just had scarlet fever. "He feels blue," Lyuba thought, "I must find some way to make him and Borya friends again."

"Are you going skating?"

Gena shrugged his shoulders, giving Lyuba to understand by his whole appearance that her question was the most incredibly stupid one possible.

"You think I have nothing else to do?" he asked in the tone of a busy man.

"Maybe you're about to set off for the moon?" Lyuba said spitefully.

"Curiosity killed the cat," Gena parried with a glance at his former friend who was standing near by.

Hearing the answer, Smelov let out a whistle and strode off.

No, today she had no luck. Lyuba decided the day would be dull and ordinary. She did not suspect that mystery was only two steps away from her.

Gena Karatov was really getting ready for a flight into space. For some time he had been training and exercising his will. Who knows what kind of hardships he would have to undergo in a spacecraft? Maybe it would fly not one day and not two, but a whole year, to a distant star? All that time he would have to eat and drink and, of course, breathe. Gena calculated that a person breathes up twenty-four barrels of air a day, one barrel every hour! If you flew for a whole year, how many barrels would be needed? One rocket would not be able to carry these supplies. Chlorella—that's what would save the cosmonaut! Chlorella produced oxygen, it could be eaten, and it grew double-quick.

Gena grew his water-plant in an aquarium. In order to test the action of chlorella on himself, he decided not to eat anything for three days. Only chlorella—and nothing else!

At the moment when he was talking to Lyuba Kazakova, he was faint with hunger, but he said nothing about not feeling well. Gena looked enviously after Lyuba, resolutely marching out to the rink. But he certainly would not go. An astronaut must be a steadfast, manly fellow. Too bad though that not everyone understood that, not even Mother. She was after him all the time: eat this and eat that.

Gena sighed, threw a snowball at a sparrow sitting on the window-sill and went home.

At home Mother was busy at the stove with her face flushed and sleeves rolled up to the





elbows. The sweet smell of apple-pie filled the apartment. Gena swallowed. Wherever he might be looking, everywhere he saw that beautiful round pie with the browned crust and the golden filling. Genka shook his head to drive the vision away.

In order to keep his spirits up, he went over to his desk and took up Tsiolkovsky's journal.

"'Subjected myself to experiments...'" he read aloud, resolutely pacing from corner to corner and thinking all the time of the pie, "'...for several days I did not eat or drink anything.'" Just think of it! For several days, And I? I'm ready to give up after only one day. True, Tsiolkovsky had it easier. No one bothered him with food. He did not have to fight off his parents, like I do. If it were not for Tishka, the whole experiment would fall through....

"Tishka, here Tishka," Gena called.

The fluffy cat stepped lazily from behind the wardrobe, licking his lips. He had obviously grown fatter since Gena started eating chlorella.

"Now we'll have supper," he warned the cat.

Gena went to the aquarium and wistfully gazed at the cloudy greenish water. He did not feel like eating chlorella. But he took a glass all the same and scooping up some water, began to pour it through blotting paper formed into a funnel. At the same time he assured Tishka:

"Chlorella, Tishka, has everything: proteins, fat, carbohydrates, and Vitamins A, B, and C. So we won't waste away!"

Tishka agreed with everything, purring his approval.

Having manfully swallowed the chlorella, Gena squatted down and pulled out from under the table a dish with a meat patty.

"Come here, Tishka, come here," he lured the cat kindly.

Tishka sniffed the patty but did not eat it. (He had already eaten Genka's breakfast and dinner.)

"What d'you think you're doing? Betraying me?" Gena began to yell. He almost cried in desperation. Frightened, Tishka dived under the wardrobe. But Gena was in no mood to give in. He pulled the cat out by the tail and dragged him to the dish.

"Eat it, eat it up, you traitor," he yelled.

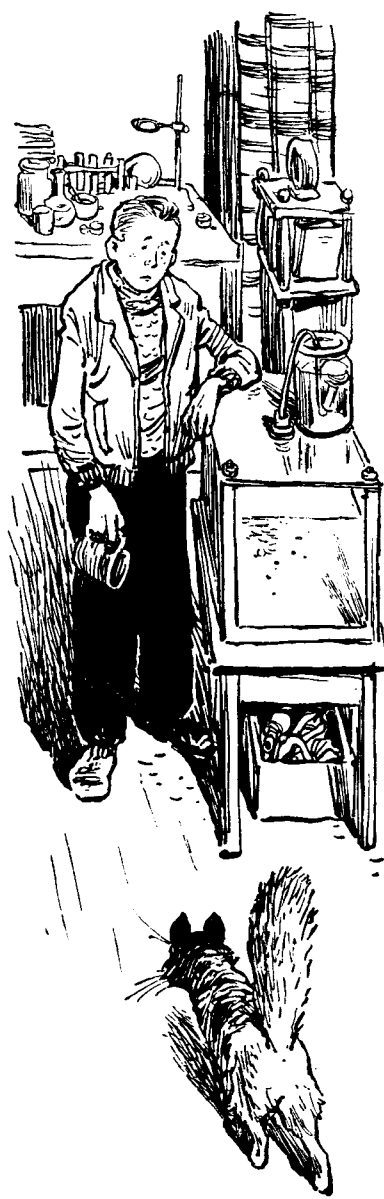
When his mother ran in from the kitchen to see what all the fuss was about she found the starving Gena sitting on his heels with the protesting cat in his arms before the plate with a cold meat patty.

He had to confess everything. Under the threat that the chlorella together with the aquarium would be thrown out of the window if he did not start eating right away, Gena agreed to have some apple-pie.

Although the apple-pie was delicious compared with chlorella, the future cosmonaut ate it with a heavy heart, all the while reminding himself of the advantages of chlorella over pie in space flight.

A CANNON OR A ROCKET?

Life is full of strange coincidences. Suppose some people were sitting in a room under a lamp, and suddenly one of them felt bored. In a minute, you look, and another one is leaning





back doing nothing, then a third. Boredom, like yawning, transmits itself from one to another. Grown-ups prefer to be bored alone. But thirteen-year-olds, if they have finished their homework and the book about Sherlock Holmes lies forgotten on the shelf along with *Treasure Island* and the stamp album, and if none of the grown-ups feel like playing chess, and if the ice of the rink is all bumpy after yesterday's storm so that not a single self-respecting sportsman would appear on skates, on such evenings they collect in little groups in entrances and start conversations about secret signals coming from distant stars, about invisible heroes, about the secret of immortality and about those lucky ones who will stand in entrances just like this a thousand years hence and talk in the blue twilight of evening. This endless conversation goes on and on until a window opens on some floor or other and the stern voice of some boy's mother says, "Eleven o'clock, lazybones! Home to bed!"

Precisely in this way, without any previous agreement, our three heroes met in the evening on a path stamped out in the snow by the indifferent feet of passers-by. Finding themselves unexpectedly together, they were forced to say hello; at the same time each one took a step to the side, as if demonstrating a scene from *The Swan, the Pike and the Crab**. But bound by a common desire to speak, they marked time, each

* A famous fable by Krylov, in which the swan, the pike, and the crab were all hitched to a wagon, which did not go forward, because the swan tried to fly, the pike to swim and the crab went backwards.—Tr.

hoping that the other would say the magic word after which they would all feel at ease and could, without constraint, look one another in the eye. Lyuba found that word first.

"Look," she said, throwing her head back. "The North Star is over our house!"

Following her gaze, the boys looked up.

"If it were not for the clouds, I'd point out to you all the bright stars," Gena said.

The great fixed star shone coldly over the house, and the names of the stars that Gena pronounced, "Algol, Aldebaran, Altair, Alcyone, Antares, Arcturus. . ." also sounded cold, but it seemed to Borya, that it had grown warmer.

"Warm, even hot," he said irrelevantly.

"But on the moon there's a tremendous frost, 270° below zero, according to the latest information," his former friend responded.

Meanwhile Lyuba was treading a path in her white felt boots to a closed-up, snow-covered stall, where apples were sold in the autumn, and jumping up, sat on the counter.

"Oh, it's fun here! There's no wind at all. Come over!"

Borya and Gena plunged into the snow, churning it up with their feet, and when they reached the stall their boots were full of snow. Hopping on one leg and holding on to the stall with one hand, they shook out their boots and nearly rolled Lyuba into the snow-bank. Lyuba was willing to endure any ordeal. She was happy to see that the ice had melted.

"You wait! We'll show you!" Borya yelled, pleased to say that little word "we", and with all his strength he hurled a snowball at the plywood wall. Gena also grabbed some snow.

"Take that for Sputnik I," he commented on each throw. "Take that for Sputnik II and that for Sputnik III! And that for the dream rocket!"

A whirlwind of snow was hurled at the stall. Lyuba squealed and hid in it.

"Hey, that's enough!" she cried from her hiding place. "Let's think up questions. Each one has to think up the most important question in life, and then we'll discuss it. Go on, think!"

"Now what?" Borya growled and then broke off, because Gena did not laugh.

Leaning against the stall, he watched tiny little parachutes sparkling in the lamp-light. They circled, collided, flew off again and, falling to earth, disappeared in the heap of their brothers, forming one great parachute covering the ground. And at once questions rained down on Borya demanding immediate answers, each one seeming the most important; if it were not solved right away it would be impossible to live in the world.



"Greetings, snow-birds!" an unfamiliar voice suddenly thundered near by and a man in a reddish fur coat and a fur cap sitting jauntily on his head appeared from behind the booth. With his hands in his pockets, he looked them over with twinkling eyes. "So-o. . . What are we doing here? Looking for last year's apples? Now, now, my cock, don't ruffle up like that!" he said peaceably, noticing Borya's brows knitting together. "I was joking. I'm delighted to talk to you a little. I can even show you a trick or two. Would you like me to guess your thoughts? Oh yes, I can see right through people. Now you," he touched Lyuba's sleeve with his finger, "you're swinging your feet, wondering if there is in the world a person exactly like you, who at this very moment is sitting on the counter of a stall, swinging his feet and wondering: 'Will the tail of a lizard grow back again, if you pull it off and throw it away so far it can't be found?'"

Lyuba's mouth dropped open.

"Are you a magician?" she asked seriously.

"No, silly, your snub nose told me all that. And you," he turned and put his hand on Borya's shoulder, "dream of becoming invisible. . . You," he went up to Gena, "are thinking, 'if it's possible to invent drops that will give one the strength of a lion and the speed of an antelope?' All of these questions are nonsense! You'd do better to try and guess how man will fly to the moon. From a cannon or in a rocket?"

Having posed this question, the stranger turned and went off without waiting for an answer.

"Imagine!" Borya sighed, enraptured. "If I could only read minds like that!"



"He's not that good. He didn't guess everything exactly. For instance, I wasn't thinking about any antelope," Gena remarked.

"But how did he guess about the lizard?" The amazement had not yet left Lyuba's face.

"Too bad he went away so soon, or I'd have answered him—by cannon or by rocket!" Borya began, waving his arms excitedly.

"What would you have said to him?" Gena wanted to know.

"I would have said: you remember the famous hymn to the projectile of the president of the Gun Club, Barbicane?" And Borya, assuming a pose, began to declaim, "O miraculous cannon-ball! Amazing shell! I dream that there—in the heavens—they will receive you with the honours due an envoy from earth!"

"What's that, a poem? And who is Barbicane?" Lyuba asked, getting off the counter.

"Blockhead," Karatov shrugged his shoulder. "Haven't you read Jules Verne's *From the Earth to the Moon and Round the Moon*?"

"Don't interrupt!" Borya stopped him, "I'll tell her myself. It tells about Barbicane, who was president of a Gun Club. How he and his friends wanted to send a cannon-ball to the moon. They cast an enormous cannon and called it Columbiada. They set the day of the flight. A great crowd collected. Everyone waited for the moon to appear. When it finally came up and got to the Gemini, there was an explosion and the missile went out into space..."

"But it never got to the moon!" Gena laughed.

"But why not? Why not?" Lyuba was upset. "It was so interesting..."

"He's lying!" Borya stamped his foot. "The shell got there! In Jules Verne it says definitely, it got there!"

"That's only in Jules Verne, but in reality..."

"What in reality? What, in your opinion would happen, in reality?" Borya asked guardedly.

"In reality," Gena began to explain, "you can't send a missile to the moon with any sort of cannon. For that you need a tremendous speed, seven miles a second. Do you know the velocity of an artillery shell? Do you?"

"Yes, I do. Two miles. My brother told me."

"That's right. Two miles. Now, figure it out. Will you reach the moon or not? Not on your life!"

"I don't like your tone!" Smelov warned.

"Don't get angry. This is just a discussion, like the Greeks say, an honourable argument."

"Of course, a discussion!" Lyuba chimed in.



"If it's an honourable argument," the defender of Jules Verne said indignantly, "why don't you take into account that the cannon Columbiada was not an ordinary cannon but a special one, with a barrel three hundred and thirty yards long?"

"That's even worse," Gena calmly objected. "Your Barbicane and his friends would be turned into pancakes if they got into the cannon-ball. You don't believe it? Maybe you don't believe the French scientist Robert Esnault-Pelterie? He also read Jules Verne and calculated everything. He said that with such a long barrel, a tremendous speed would be developed, and the people in the shell would weigh a thousand times more than on the earth. You get that? Even the hat on your president's head would weigh tons and would flatten him out!"

"Impossible!" Lyuba gasped, believing and not believing.

"Do you mean to tell me I'm a liar? Or that scientists lie? You're just a silly girl!" Gena could think of nothing more scathing. The silly girl sulked.

The name of the Frenchman Robert Esnault-Pelterie sounded convincing. But Borya was eager to defend Jules Verne. He searched his memory for all the details of the moon-flight, comparing them with Gena's arguments and at last he found something:

"Water, water!" he yelled, as if he were in the middle of a desert.

"What's the matter, Borya?" Lyuba asked in a worried voice. "Are you ill?"

But Borya waved her off.

"You know," he said with fervour, "I completely forgot about the water. They lay on the

floor in the missile, and under the floor there was water. It saved them. That's how it was!"

"A water pillow? Terrific!" his opponent unexpectedly agreed. "Only don't be too sure of it! They'd be squashed to death anyway. But the idea is correct. Tsiolkovsky also considered that water could protect man from pressure. If an astronaut got into a tank of water, he'd remain alive. In general, Tsiolkovsky foresaw everything."

"Is that why you pretend you're deaf at school, in honour of Tsiolkovsky?" Lyuba jeered.

Karatov looked as if he hadn't heard that.

"In Yefremov's *Andromeda* . . ." began one of the boys, but Lyuba could stand it no longer.

"That's enough of Yefremov and Tsiolkovsky!" she cried. "My feet are frozen!"

"Now we'll test weightlessness and warm up," promised Gena. He stood on the counter of the stall and pulled himself up onto the roof. Borya climbed after him and together they pulled up Lyuba.

"I'll be first," Lyuba said, rolling her eyes with fright, and jumped down.

"What did it feel like? Was there any weightlessness?" Gena asked, leaning over.

Below in the snow-bank, something floundered about and sneezed.

"I feel. . ." came back Lyuba's plaintive voice, "I feel I'll have a bruise on my knee."

"Wait a minute! We're coming!" both debaters leaped. They fell, without feeling weightlessness.

"It's not high enough," explained the admirer of Tsiolkovsky.

"That's it," agreed the defender of Jules Verne.

Lyuba had already clambered out of the snow and was hobbling to the entrance.

On the stair landing, the star-gazers felt quite at home.

"Jules Verne also describes weightlessness," continued Borya, as if there had been no interruption. "Imagine, they swam about in the missile like fish in water, and the dog Diana with them. Then they drank wine. They set the glasses in the air, and filled them from the bottle and drank."

"And didn't get anything to drink," Gena added as if to himself.

"There you go again, finding fault!" Lyuba turned on him.

"Didn't get anything," Karatov repeated stubbornly. "The wine would have spilled out of the bottle, dispersed in little drops in the air and got into their eyes and nose and ears. And everyone would be coughing and sneezing, and



they'd even come down with pneumonia. Your Barbicane didn't know that in weightlessness liquids don't stay in a container. If I were the teacher, I'd give him an unsatisfactory mark."

"But have you forgotten that Barbicane lived a hundred years ago?" the defender of the cannon-ball missile said.

Gena thought a minute, pushed his cap up on his forehead and said in the voice of their maths teacher:

"I am writing in the journal: the pupil Barbicane didn't know of the effects of weightlessness on liquids for a very good reason. Period. I now cross out the unsatisfactory mark."

"I give up, too," Borya said. "The cannon is called off. Though I like Jules Verne all the same."

"Fly on a rocket, and you won't be making a mistake," Gena suggested. "Did you see how the dream-rocket went off to the sun? The whole world is holding its breath. But Tsiolkovsky foresaw all that; all his formulas came in handy. My father says Tsiolkovsky is the father of the jet engine theory. So strike out and fly!"

"It's fine to say, fly. But what will he eat out there?" Lyuba asked.

"What he will eat? Well, bananas, delicious fragrant bananas. They'll grow in the greenhouse. It's nothing to snicker about! Tsiolkovsky himself suggested making greenhouses in space vehicles. He also mentioned bananas. Personally, I'm going to eat chlorella. Ever hear of it? It's a single-cell alga. And it's full of vitamins. Do you know how fast it grows? In twenty-four hours it can multiply a thousand times! I'm growing it at home."

"Where?" his listeners cried out.

"In an aquarium. I can show you. Come up to my house!"

Gena's desk was a small laboratory in itself. Only in a laboratory could you see so many retorts and tubes and cylinders and all sorts of other things, the meaning of which at first glance it was impossible to guess. Retorts were piled up in fantastic disorder. Lyuba noticed the disorder at once. But Gena produced the argument that Tsiolkovsky himself had considerable disorder in his study and never allowed anyone to move the things on his table.

"There is system in this disorder," he said proudly. "I can put my hand on anything I need."

Chlorella turned out to be an unpleasant looking greenish gruel. It swam in the aquarium covered with a sheet of plexiglass. From the cover a bent glass tube stuck out and led to a jar of water, where its end rested in a retort. While the guests were looking at this strange construction, Gena ran to the kitchen and came back with a smouldering splinter.

"I'll show you what chlorella can do," he said, taking the retort and putting the splinter in it. The smouldering wood burst into a steady flame.

"See that? It's oxygen! The chlorella made it. These water plants are a treasure for astronauts. They're edible, too. I've been trying them and I think they're not bad.... But sit down, for heaven's sake. Why are you standing like dummies? I'll shown you the flight of a cosmonaut in a water chamber. Mother!" Gena yelled into the open door, "give me an egg!"

The request went unanswered.





"Wait a minute. I'll be back in a flash!" Gena promised and slipped out.

If the guests had glanced into the kitchen they would have seen, or rather heard, the following scene.

"Mother, give me an egg!"

"I've said there aren't any."

"But I know there are!"

"And I said there aren't."

"All right, then!" With the aid of a chair Gena climbed on the open door. He lay across it on his stomach and hung down like macaroni. "I'll hang here until you give me one!" he gave his ultimatum.

The door squeaked. Gena's mother silently went on beating the cream. Gena manfully hung head down.

"Monster!" his mother cried with feeling. "Here, take it!"

Gena jumped down, grabbed the egg together with a mug and the salt-cellar. With tousled hair he returned to the room where his friends were waiting patiently, and triumphantly showed them the egg.

"Look, I'm dissolving salt in water. This mug is the water chamber," the experimenter explained. "The egg is the cosmonaut. I put the cosmonaut in the chamber and..." Gena banged the mug down on the window-sill.

"Oh!" said Lyuba.

Some drops of water splashed on the floor.

"Look at that, convince yourselves: the cosmonaut is whole. You can even feel him," offered Gena.

They looked into the mug.

"Not a single crack," Borya said, turning the egg. "A regular professor, you are, Gena."

"I'm not the one who thought of it," Gena confessed. "It's one of Tsiolkovsky's experiments. If you came oftener, I'd show you a thing or two. . . . Let's be friends," he suggested unexpectedly.

Lyuba turned pink with pleasure. At last! She looked from one to the other. They were both embarrassed and glad.

"And we won't ever quarrel again," continued Gena. "All right?"

"All right," Borya answered.

"All right," Lyuba affirmed, putting her hand into Gena's.

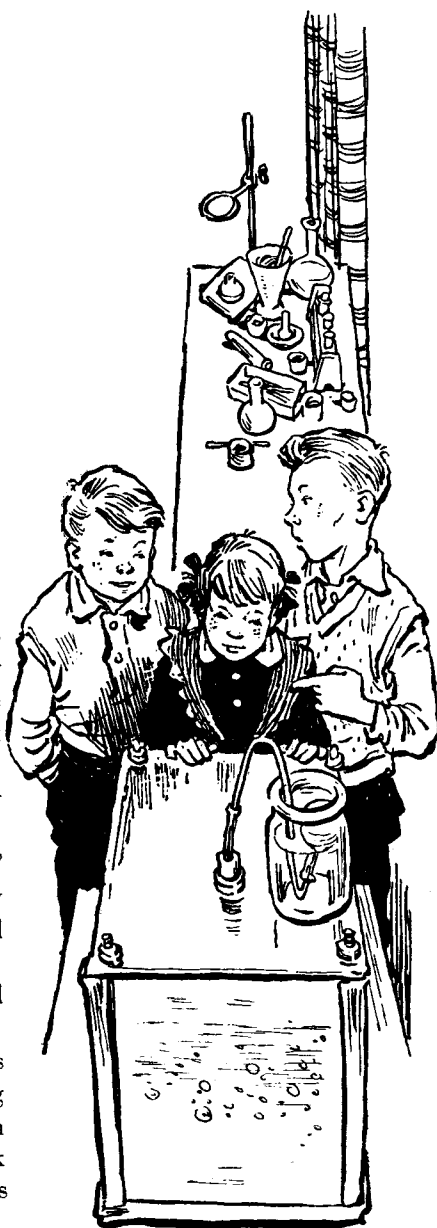
. . . Zing! The icicles fell in the entrance. The lights in the house went out one by one. There, that green one—it winked and went out, announcing to all and sundry that Borya Smelov has gone to bed.

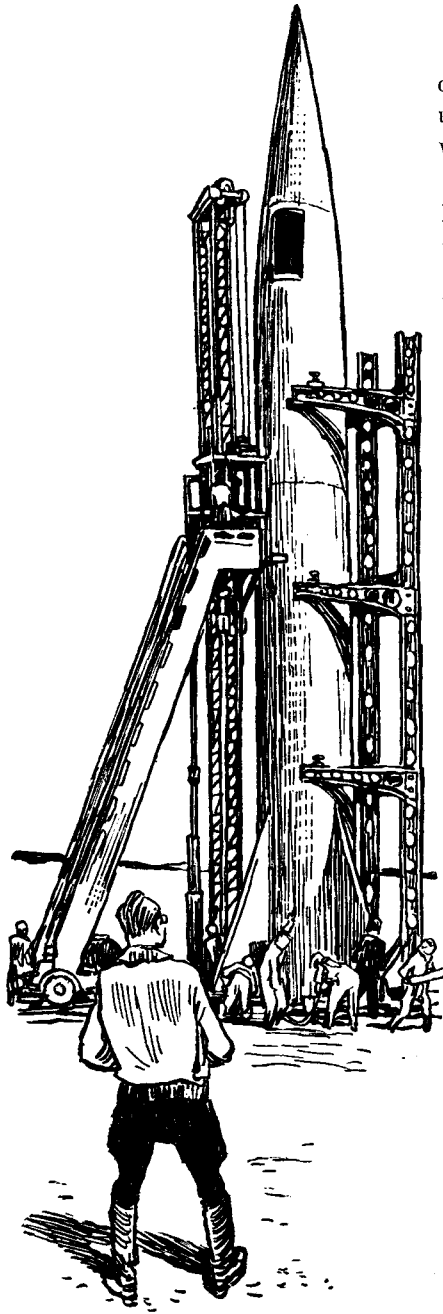
Zing! And again all was quiet. What was that? Was it a falling icicle or was it the tinkling of a retort on the table? Gena Karatov turned over in bed. He got up and saw that the Chinese mandarin Wang Hu, dressed in his silk robe, was rocking back and forth on a chair. Two enormous dragons were lying peacefully at his feet.

"A cannon or a rocket, a cannon or a rocket?" the mandarin asked in the voice of the merry stranger, and his thin pig-tail bobbed up and down as he rocked.

"A rocket, of course a rocket," Gena wanted to say, but his lips moved soundlessly.

The mandarin rocked harder and the dragons swelled. Then they tore the chair with Wang Hu off the floor. Zing! The window flew open and the dragons flew away. Wang Hu's silk gown gleamed like gold, and Gena saw Borya's





dog Rags in his arms. "Wait, wait a minute!" he yelled at the top of his voice and woke up.

It was dark in the room. The chair was in its place and a golden ray from the street light, swaying outside, was trembling on the wall. "It was only a dream," Gena sighed with relief. "All the same, we have to find Rags."

THREE . . . TWO . . . GO!

Like a sentry, the rocket stood in the middle of a field that was rusty red with last year's dry grass. Its sharp point was aimed in the very centre of the sky's blue dome. High in the rocket, the black eye of the open hatch looked out on the vast field, at the figures of the people bustling below, at the cabin of the lift sliding up the tracks along the slender body of the rocket, and at the low, lumbering automobile.

Only one person was neither working nor hurrying. With his legs in high boots planted wide apart he was looking up at the black eye-hatch.

It was Dr. Dronov. He was not busy because he was neither an engineer nor a mechanic. They ran round the rocket, jumped on the lift, inspected this and that, examined their beloved creation from all sides. The doctor was waiting his turn. He had come not only to look.

"Cyclops!" Dr. Dronov thought, admiringly eyeing the silver shaft. "A beautiful one-eyed giant! How many parents and nurses you have. Scientists thought about you for days and nights on end. Engineers and mechanics created you on

paper, in blueprints, in tables and figures. Your great steel body still holds the warmth of the workers' hands. And your stout heart, the engines, in which will rage a thousand-degree fire, were conjured up in the ovens of the metallurgists. And your blood, your light fiery blood, was poured into you by the chemists. But where would you fly, great giant, if you had no head? Thank the physicists for your clever instruments and automatic machines. And, of course, kindly remember the mathematicians on your trip; they prompted your every step.

"You have so many parents, you can't remember them all. When the Italians named you 'rocket', which means an ordinary pipe in their language, they never dreamed you would become so mighty. Now the very earth will tremble and shake. It will be you, mighty rocket, pushing off from the earth, rushing up into space to look at the stars with your one eye."

"It's time," Dr. Dronov's thoughts were interrupted by someone's voice.

Vasily and Valya came up. They were holding the dogs in their arms. They wore their white laboratory smocks: they had just taken blood samples from the dogs, weighed them, recorded their pulse on tape, and measured their temperatures. Snapper and Palma, already strapped to their trays, were calm. They only wagged their tails, recognising Dr. Dronov.

"Ready," answered Dr. Dronov.

They walked to the rocket.

The cabin of the lift crept upwards. The dogs looked down at the grass, so rapidly going away from them, but the people accompanying them looked upwards.



The lift stopped at the open hatch. The doctors fastened the dogs' trays into the rocket capsule. They connected the wires sticking out from under the clothing of the pilots to the apparatus. They checked everything, again looking over the cabin.

They satisfied themselves that everything in this capsule, which resembled a hat, was in order. Inside, it was a little world in itself. The glass-wool insulation protected the pilots from heat, for during flight the rocket shell would get as hot as a tea-kettle on the stove. For breathing there was a balloon of oxygen mixed with air. There were control instruments that would record on tape the information given by the transducers about the dogs' condition and transmit it by radio. There was the faithful companion of the flyer, the accelerograph, whose leaping graph tells of the invisible forces of gravity. And the cine-camera, hanging over the heads of the travellers, would take pictures of them from the first minute to the last. At the same time, it would shoot the clock, so the doctors would know exactly when everything took place, and would be able to compare the film strip with the reports of the instruments.

Only the parachute was not visible. It was somewhere under the floor packed in a solid capsule. When necessary, it would open.

"What do you think of it?" Dr. Dronov asked.

"Excellent, as far as I can see," Vasily said. "As good as in a Tu-104. Well, then, stewardess, say good-bye."

"So long, Snapper. Bye-bye, Palma!" Valya said. "Don't worry. Everything will be all right!"

"Till we meet again!" the men said.

The hatch was covered, and there remained for observation only a porthole a little smaller than a saucer. Valya, Dr. Dronov and Vasily looked into it in turn. Then they went down by the lift and only the blue sky remained visible in the porthole.

The dogs lay next to each other, spread out on their trays. Snapper looked about calmly. Palma seemed quite indifferent. She yawned painstakingly. They lay for quite a long time, not suspecting that the event for which they had trained so long had begun. The instruments were already making their reports, air was coming out of the balloon, and the cine-camera was quietly whirring away.

The field around the rocket became deserted. The people all went down the cement steps into a shelter, over which sparkled the glass of stereoscopes. The mechanics were the last to leave.

It became crowded in the shelter. But Dr. Dronov thought, "How fine it would be if all the others came in, in their overalls, smocks and work clothes. If they

could only get away from their lathes, furnaces, retorts, drafting tables, at least for a minute, in order to see what their hands had made, so that a smile could light up their tired faces. No, they won't come, they're too busy. They have other creations to attend to. . . ."

The hour of preparation was coming to a close. The engineers were at their posts, at the instrument panels. Their faces were calm. They waited for the commander to press the button that would give the signal for the take-off.

All eyes were on the commander. Nobody spoke. The silence was complete. Only the clock ticked off each second with its big second hand.

Vasily could not understand why the commander did not look excited. With his shaved head and stocky figure in a soft lounge jacket, he reminded him of his maths teacher at school. His maths teacher had always been composed, even during exams when the whole class seethed with excitement. One could understand it. But this imperturbable commander—how could he be sure that nothing would go wrong with the rocket?

"Get ready!" the commander ordered, and began to count down, "Five . . . Four . . . Three . . . Two . . . Go!"

On the television screen the spectators saw a bright flash light up the rocket from below, and a cloud of smoke surround its body. In the next moment the sound of the explosion hit the door of the shelter.

Slowly, as if thinking it over, the rocket rose above the cloud of smoke, let out a stream of flame and, pushing a column of bright rose-coloured gases into the ground, rushed skyward, gathering speed with every second. With a flash of golden lightning it diminished into a small shining speck.

At this moment Vasily remembered his instruments and made for them, but his way was barred by a wall of backs. The servants of the mighty missile—workers, mechanics, and engineers—were standing round the screen in a solid ring, glued to the sight of the jumping green line. None of them could read what the jumping line was saying but they were watching attentively all the same because it was telling the story of the passengers.

Stepping on toes and excusing himself, Vasily made his way to the apparatus. Valya hurried him on. She was almost weeping with despair. What was the use of having learned to understand the language of the instruments and taken examinations at the institute, if now she could not see a thing? The instruments would write everything on a tape, of course, and she would read and reread the tape, but nonetheless she was a blunderhead. With Dr. Dronov it was different: he had guessed how it would be and had taken his seat beforehand.

At last Valya and Vasily reached the screen.



In the rocket, a sudden peal of thunder burst in on the passengers. They turned their heads this way and that, trying to understand where the strange frightening noise was coming from. They did not know that it was the melody of their flight, that they were flying!

In its headlong rush the rocket carried the capsule higher and higher. It left behind the paths of birds, the highest peaks and the ceiling of jet planes, went through the clouds and into the upper layers of the stratosphere, where meteors flashed like falling stars and where the iridescent Northern Lights were as usual a sight as neon signs in the streets. Even in these fascinating regions, the rocket did not stop but continued its journey to a height where instead of air there were only invisible particles of gas and where our passengers would perish instantaneously were it not for the protection afforded by the pressurised cabin.

It was a pity Snapper and Palma could not look out of the round window. At first the vibration shook them, and then the invisible forces pinned their heads down and sat on them. Their chests were compressed, their hearts pounded, and their bodies felt as though they were filled with lead. But they did not get frightened; they lay quietly. Suddenly the engines stopped. . . .

Imagine yourself unexpectedly flying up to the ceiling, like a balloon. You were on the floor a moment ago and suddenly you are floating in air.

That's what happened to our passengers; it took their breath away. It was as if a mighty hand held them up gently. They could not feel their heads or their paws or their tails. They

became lighter than feathers. Were it not for the belts, they would have soared like birds.

It was astonishing! You only felt like that in dreams.

This amazing situation cheered Snapper up and his eyes began to sparkle merrily. He looked at the porthole and saw an inky-black sky and a bright blinding sun. It was beautiful and terrible.

Then Snapper looked round the cabin and noticed that a ray of sunlight was peeping into the porthole. It was reflected onto the opposite wall, forming a spot of light. The spot sat still for a while and then jumped off the wall and fell on Snapper's left eye. He squinted, snorted and shook his head, and when he opened his eyes, the spot of light was on the ceiling. But there, too, it did not sit quietly but began to jump from place to place.

Snapper's eyes became narrow little slits, his tail began to wag happily, and from his throat came short sounds resembling laughter.

Snapper gave himself up to the game wholeheartedly but he did not understand the meaning of the game the spot of light was playing. If a man had been there, he would have known that the reflection was not jumping from wall to ceiling by chance. In a state of weightlessness an astronaut does not know "up" from "down"; he is suspended and does not feel the motion of flight. But the sun's ray tells him, "Your rocket, with the engine turned off, at first was flying up, then came to a standstill, turned nose down and is now falling to earth. Now it will go into the solid layers of the atmosphere. Beware! Beware!"

The reflection was right. The rocket described an enormous arc, turning various sides to the sun, and then, still revolving round its axis, began descending.

On earth the doctors also knew that the most dangerous duel would now take place. In its descent a rocket goes through intricate turns, falling through the air like a barrel rolling downhill. It must be a harrowing experience to be inside one.

If only the parachutes would open quicker.

True enough: as if by a secret signal, invisible forces attacked Snapper and Palma, pummelling them up without mercy. Their chests heaved, their backs ached, their insides were squeezed. Everything grew dark before their eyes from the blows they received on their heads. The blows they were given on their backs made the blood rush to their heads and a red film appear before their eyes. It was as if the evil forces of gravity were taking their revenge for the few moments of pleasure the dogs had during the period of weightlessness.



Snapper and Palma endured everything, even when the unemotional instruments could not stand the sharp jolts and stopped writing.

The doctors ran out of the shelter. They were followed by all the others. Everyone looked into the clear calm sky until their eyes hurt, searching for the falling rocket and not finding it.

The blood throbbed in their temples. Where, where was the rocket? A thin wisp of smoke appeared in the blue sky. It was the scarcely visible trace of the red-hot head of the rocket. It appeared and then disappeared again, leaving the sky as empty as the field below.

Then a white kerchief flashed in the heights with the suddenness of a shot. It did not disappear, but gradually spread out into a white sail that slowly floated down to earth. The outlines of the round cupola of the parachute and its precious weight, the triangular tip of the rocket, grew clearer.

The sun shone and silence reigned. Only somewhere in the heavens a lark was singing.

Silently the people ran across the field, in a body as if by some prearranged signal. In front ran the doctors, their white smocks billowing out like wings.

They sped to the sail.

Cars hooted, overtaking the runners. Some of the people jumped on their footboards, others waved them off, trusting their own legs better.

The engineers gathered in the parachute. Dr. Dronov and Vasily together tried to look into the porthole and see if the passengers were alive.

"Are they alive?" Valya asked in alarm, stamping her foot impatiently. "Answer, for heaven's sake!"

The doctors did not answer. They quickly opened the hatch, pulled out the trays with the dogs on them, and untied the straps.

"Hurrah! They're alive, alive!" Valya cried and shook the shoulder of somebody or other, probably an engineer. "Hurrah, comrades!"

The engineer she was shaking was squatting on his heels and running his hand over the rocket, evidently blind to everything else. He had not heard Valya and was blinking confusedly.

"What a character!" Valya said in an offended tone. "They're alive, everything's all right."

"Yes, of course, that's fine!" It finally penetrated; the engineer stood up. "Congratulations." He shook hands with Valya and then with the doctors. "Congratulations, congratulations! It's a great day! Excuse me, I have to go."

He again sat down by the rocket and from his face it was evident that he was distressed. Dr. Dronov understood the man: the descent had not been altogether successful; as the specialists say, it had been hard.

But one way or another, these rocket engineers had done a good job. Snapper and Palma had returned safe and sound in the rocket that was now lying on the ground. The sides of this darkened, heated shaft deserved to be patted in the way a test-pilot pats an unmanageable plane, after he has landed it in spite of everything.

Palma lay on the ground panting heavily, her long pink tongue hanging out: what had happened had obviously overwhelmed her. But





Snapper jumped up and shook himself energetically, like after a bath. The warm sun, the smell of the earth and the grass, and the joyful, familiar voices made him immensely happy. With a squeal he rushed round Vasily, leaping and bounding about like a merry sunbeam. It was as if a spring that was impossible to stop was unwinding inside him.

Valya watched this wild dance of joy and laughed. Vasily joined in with his bass. Dr. Dronov's eyes sparkled. The distressed engineer came up and also smiled. Then more and more people came. The merriment was catching.

"Here now, little fellow! Give us a Russian dance!" someone yelled, and everyone saw that it was the calmest person of them all, the commander of the launching.

Soon Valya rang a little bell, and the dance broke off. Snapper obediently ran to his dish. Palma got up and followed him. The dogs ate hungrily. They finished their supper with pieces of sausage, for which Snapper willingly stood on his hind legs, begging like a circus dog. "Look," he seemed to be saying, "the ordeals of the flight have not spoiled my appetite."

"Oh, what a little imp you are, Snapper!" Vasily said, shaking his head in mock reproach.

"What? What did you call him?" asked the commander of the launching. "Snapper? Why Snapper? A valiant, jolly fellow like that, and you call him Snapper?"

Vasily did not know what to say. Dr. Dronov came to the rescue.

"You see," he explained, "Snapper was his former name. But really he's called something else.... Courageous—that's it. Sounds good, doesn't it? Courageous."

THE WHIMS OF FAME

When space flights become routine people will think gratefully of the courageous scouts, who blazed the trail to the cosmos. "Thank you, four-footed astronauts! You flew in rockets when the first sputnik was only being planned. You risked your lives to test the safety of the cabin and the space suits. You bore the strain of gravity forces. You entrusted yourselves to the mysterious silence of weightlessness that is like a fairy-tale or a dream. And you sometimes had to wait long for a helicopter to come for you after you had landed. And then it all began over again: training, flight, training. Every beat of your heart is recorded in the great and very important book of space medicine. From these records scientists discovered the laws of safe flight for man. Thank you!"

That was what Vasily thought on the way from the cosmodrome to the institute.

"My friends," Dr. Dronov said interrupting Vasily's thoughts, "I look at you both and I see that you are still very young."

"What makes you think that?" Valya was amazed.

"It's very simple," Dr. Dronov explained. "Look at each other carefully. See those little specks on your noses? That's what I'm talking about, my dear young people. They are freckles. And it's spring!" He pointed to the window.

They rode through the town, which was flooded with warmth and light. Little boys were jumping across puddles on the pavement, and in each puddle gleamed the reflection of the sun. Everything shone and sparkled, making people squint, and it seemed as if some bold artist had with one stroke of his brush drawn the silhouettes of cranes against the blue sky.

In half an hour the doctors were sitting in front of the professor, and Dr. Dronov reported:

"The dogs went up to an altitude of 695,360 feet. In the active sector of the flight, their pulse, breathing and blood pressure were above normal. In the period of weightlessness the norm was reached gradually but slower than in the laboratory. Weightlessness evidently surprised the dogs."

"What are your comments?" the professor asked.

"It seems to me that during the descent deceleration was not very smooth. We have practically no records. The instruments stopped working. The designers must improve the system of retrieving the capsule. It would be useful if they

could develop some kind of air springs or something, or a cabin with a weighted bottom that would keep it upright."

"Let's hope they will," the professor said. "Your comments are valuable. We shall certainly turn them over to the designers. . . . Were there any scratches or bruises on the dogs?"

"No. Snapper, you know," Dr. Dronov smiled, "turned out to be a stout fellow. We've changed his name to Courageous. How do you feel about that?"

"There will be no special directive to the institute," the professor jokingly observed, "but if he deserves it I'm not going to object. It sounds better, of course. Even interesting for the press. Correspondents are coming here every day wanting to see the new celebrity. They've swamped us so completely that we can't work. By the way, they're making a film. I would appreciate it if all of you gave them a hand, or, at least, Vasily could."

Soon after this conversation Vasily was cornered by a stranger in a yellow suede jacket and a sporty hat.

"Aren't you the man who just came back from the cosmodrome?" he asked. "Glad to make your acquaintance. My name is Kulik. I'm a cameraman. You've heard of me, probably. We need your help. Where are your dogs? You'll help us, of course."

There was a special determination in the man's tone. He gave even his questions such winning intonations that one could not possibly help doing what he asked.

Vasily brought in the dogs. Yesterday's test-pilots rushed into the courtyard and ran round sniffing at the trees, the corners of the house, and the paths.

"It's a pleasure to work with obedient animals," Kulik said, adjusting his camera. "Once in Yalta I filmed a monkey. You can't imagine the trouble I had. The monkey turned out to be very bad-tempered. She was annoyed by the sound of my camera, and every minute I thought she was going to bite my nose off. She was aggressive. More bulldog than monkey."

"I saw your film," Vasily said. "If I'm not mistaken, it was called *Rena in Space*. I liked it very much. You get the feeling monkeys could really do reconnaissance in space."

"I suppose so, but that film made me allergic to monkeys," Kulik confided. "I'm glad you use dogs. I hear the Americans are training and sending out monkeys?"

"Yes, they prefer monkeys."

"I can imagine what a terrible time they have, poor fellows."

"Monkeys are harder to train," Vasily agreed. "To measure a monkey's blood pressure you have to put him in a cage with moveable walls. Otherwise, he breaks all the apparatus. You correctly observed that they are very high-strung animals. There have been cases of chimpanzees dying from the loud blast of a steamship whistle."

"Our medics did the right thing," concluded the cameraman, "when they selected other experimental animals. Please call the dogs."

The dogs obediently ran up.

"This one is Courageous," Vasily said. "And this one, with the black ears, is Palma."

"Hello," Kulik said and picked up his camera. "Now, let me see. They have just come back from space. What do they do? They jump with joy. Ask them to jump!"

"I'm sorry," Vasily said. "They aren't circus dogs. But Courageous really did jump, while Palma wasn't herself for a long time and was completely indifferent to everything."

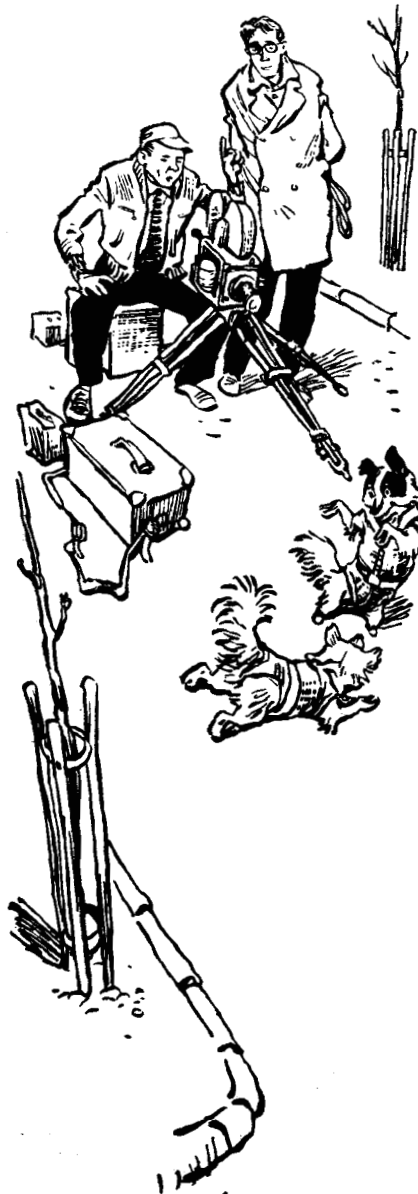
"We need feeling!" Kulik said emphatically. "Better that they should both jump! Otherwise the film will be dull. I need your help."

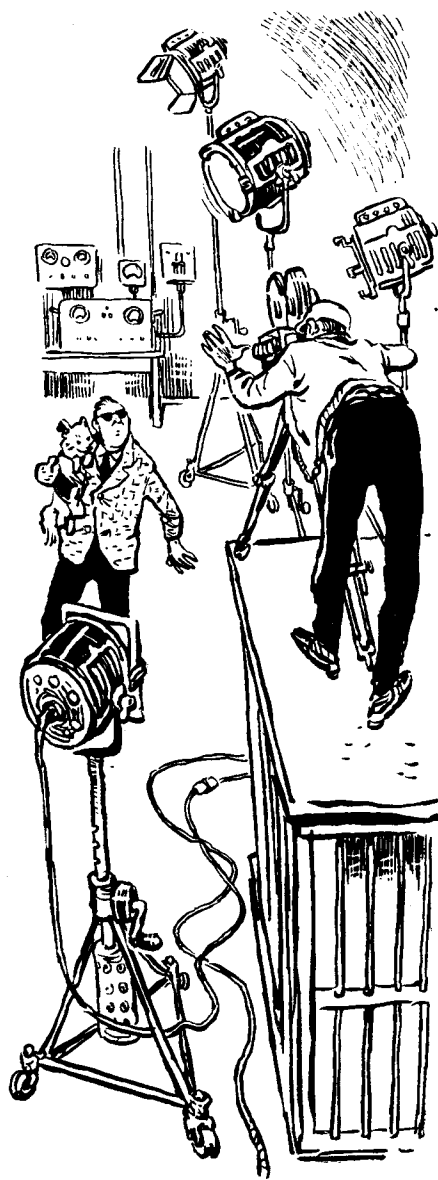
"Well, I'll try," Vasily said without much enthusiasm. "Snapper, Palma, come here!"

"Who is Snapper?" Kulik asked, pricking up his ears.

"Pay no attention," Vasily reassured him. "It was what Courageous used to be called. He doesn't respond to his new name yet."

At first the dogs did not understand what was wanted of them and, puzzled, stood on their hind legs. Then they livened up, began to frisk and jump, but of course it was nothing like Snapper's





mad joy when he saw the grass. The operator was evidently not very pleased with the shots. But he continued praising dogs and disparaging monkeys.

The next morning Kulik burst in on Vasily and cried out:

"What made you hide such a treasure?! Good morning, good morning. She's a regular screen star! You understand that?"

"Who are you talking about?" Vasily did not understand.

"Come with me! Organise for us a little training session with her! I'm planning a big thing here. I'm sure it'll be a success."

It was impossible to object. He pulled the doctor after him like a tug-boat towing a barge, and described his discovery in glowing terms all the way. But Vasily did not know who he was talking about until Kulik stopped at the cage where Duffer was frisking about.

"There," he said triumphantly. "She'll make the picture famous. Look at her: tell me she isn't a film star! There can be no doubt about it."

From that day on Kulik worked with enthusiasm. He and his assistants came to the institute in the morning at the regular time. He asked the doctors to go on with their work and pay no attention to him, but really got in everybody's way. He would lie down on the floor with his camera or climb to some place under the ceiling, trying to find an original vantage point for the filming. Then he would ask them to take this away or move that over, and please, would the people, except for so-and-so, be so kind as to leave the laboratory for a moment? But nobody got angry with him, for the man was completely wrapped up in his work.

He filmed Duffer more than anybody else. In vain the doctors told him that, in their opinion, the whole group of four-footed astronauts should be the heroes of the film. Kulik was determined to give the world a new film star with a comely face and an expressive tail.

"I've had my revenge!" he announced once to Vasily.

"I don't understand," Vasily said.

"Rena, that capricious and crafty creature, has been punished at last! Now do you understand?" Kulik answered. Seeing the amazement on the doctor's face, he explained: "Oh no, I had nothing to do with it. I just happened to meet Sofya Lep, Rena's trainer, and she told me that justice had been done."

After the film about her had been made, Kulik said, Rena's character got from bad to worse. She became irritable, would not obey the trainer at rehearsals, and it cost Lep a lot of effort to make her perform in public. Her circus career ended with her running out of the ring during a performance and biting three of the liveried helpers and the director of the circus. They did not know what to do with her and in the end gave her to a travelling Zoo. That was the last that Sofya Lep saw of her. People had told her that Rena was travelling with an old lion, a lame elephant and a flock of screeching parrots. The monkey made faces and performed various acrobatic tricks, begging candies from the children. They were glad to treat her, never dreaming that this grimacing marmoset was the same Rena, who had looked at them from the screen through her glass helmet. . . .

"I congratulate you upon your deliverance from the evil spirit!" I told Sofya Lep," continued Kulik. "And she said to me, 'Thanks, but I am now training parrots. And their beaks are as dangerous as the claws of a tiger.' She's a very courageous woman!"

Vasily did not see the exuberant cameraman again after this conversation, for Kulik had finished his filming at the institute. There followed days and weeks of the usual work with the dogs. They were preparing for new flights.

Why new ones? Were Laika's discoveries not enough? Had they not learned a great deal from the safe landings of Courageous, Palma and others?

For the doctors it was not enough, though the book of space medicine already had many pages. The first page had been written by them in 1949, when the first rocket was launched from our country with four-footed passengers. Year after year the space doctors compared their observations and notes, worked out the laws of the new science, the rules of safe flight. Dr. Dronov, Vasily, and Valya contributed to this important work.

The doctors now knew how dogs behaved in the presence of invisible enemies—the fever of vibration, the strain of gravity forces. They had not only studied these enemies separately. On film and on the tapes of recording instruments, they saw the complete flight picture, when one after another these enemies attacked the test-pilots. It was now possible to come to the conclusion that space flight was not dangerous to health, and that the stress that following weightlessness during the deceleration period was the cosmonaut's principal enemy.

But the doctors could not tell how dangerous the fifth enemy of the astronaut, cosmic radiation, was. The passengers of the ballistic rockets met radiation for only short periods which did not leave any trace. Laika, who flew in the second sputnik, had literally bathed in cosmic radiation, but the doctors learned nothing from this because Laika never returned. After the flight the cosmonaut was to be kept under observation in the laboratory for a long time to enable doctors to find out the effect of cosmic radiation. But that did not happen and the fifth invisible enemy remained unknown.

The new cosmonaut had to be brought back to earth. No one knew what his name would be, or how many passengers would fly in the new sputnik, or when it would happen. But every new success brought the important event closer.

Sticky fragrant new leaves had opened beneath the windows of the institute, the poplar fluff had come and gone, and the time came for the lime-tree buds to open and fill the air with their sweet fragrance.

One day in July, Vasily again led two of his charges out of the gate on leashes and behind him Valya carried a cage with a grey rabbit that was chewing indifferently.

Again the special plane flew off and its passengers were awaited at the launching site by a slender silver rocket.

Courageous flew three more times, and each flight was more successful than the last. Deceleration was smoother than before. As the doctors said, "the system for retrieving the passengers proved to be reliable".

Courageous behaved like an experienced cosmonaut. When the engines roared, he remembered the invisible pressure and laid his longish muzzle down on his paws in advance, assuming a comfortable position. During weightlessness he played with the sun's reflection as before, gazed at the bright sun in the port-hole, and discovered later that the invisible boxers had softened their blows. Each time he landed he performed his wild dance of joy, ate candies, had his picture taken and stuck his tongue out at the photographer.

Two other little white dogs joined the crew. They were Snowflake and Pearl, and a quiet rabbit called Marfushka. The dogs were inexperienced astronauts. When one of them was nervous or capricious, Courageous would put him in his place by growling and lightly pulling at an ear. The crew minded him.

"These dogs have my respect!" Vasily said to Valya. "Marfushka, now, is an indifferent creature, she does nothing but chew all day long. You take this sky-scout by the ears and she doesn't object. But the courage of those little dogs amazes me. Have you noticed, Valya, that our Snapper is now not only a fine cosmonaut but a real commander. He has real talent!"

"Please," Valya interrupted. "Don't spoil my best worker for me by praising him too much. See, he heard you and began to liven up Pearl, who is still shivering, the poor thing."

But Vasily, on the contrary, raised his voice:

"Oh, Kulik, Kulik, you missed the real hero!"

Vasily did not know that that very morning Kulik's new film was being shown in Moscow cinemas and that Duffer's surprised face was looking at the spectators. A foreign visitor had already telephoned the institute:

"Do you have a dog named Duffer? I should like very much to photograph her for my newspaper."

"By all means, come over," the professor answered into the telephone, and he smiled ironically, "now that Duffer's become a film star he'll have no more time for training."

IS IT HIM OR NOT?

Gena ran into the Smelov apartment with the air of a conqueror.

"Turn it on, turn it on quick!" he commanded breathlessly.

In confusion Borya turned on the light.

"Not that, silly, the TV. Turn it on, Rags is there."

"Rags? How? Why?" Borya wanted to ask, but there was no time to say anything. He rushed to the set and began to turn the knob.

"We are in one of the rooms of the Institute of Space Research," said the voice of the announcer. There was no picture. Bands of light ran over the screen. Suddenly they vanished. Some people in white smocks appeared. On some sort of shaking apparatus sat a dog dressed like a parachutist. It had a long, thin muzzle like Rags.



"Is that him?" whispered Gena.

Borya shook his head doubtfully. That dog with the long well-groomed fur was too quiet and too sure of himself.

"Courageous is training," said the announcer.

Then Borya said firmly, "No, it's not him..."

Then they laughed over a merry little dog who jumped and showed off, moving his great fluffy ears in a funny way.

Suddenly the long thin face appeared again. The dog was sitting in a rocket chamber and turning his head, watching a spot of reflected sunlight which had jumped in through the port-hole. On his face was depicted such limitless trust and curiosity that he could only be Rags.

"It's him!" Borya jumped off his chair. "It's him! Let's go to the institute right away!"

"To the institute?" asked Gena. "They'll kick us out."

"Then what shall we do? Sit here and do nothing?"

"We have to think up something. Let's call Lyuba!"

They sent a fat little boy who was playing in the sandbox beneath the window to fetch Lyuba. The lover of adventure appeared without delay.

"I knew it, I knew it," she rattled, coming into the room. "I was going along and said to myself, 'something is bound to happen.' And it did!"

"Sit down," Borya said sternly, indicating a chair.

Lyuba meekly sat down.

"Listen, we'll begin today. You'll have to..."

Three tousled heads bent over a map of the district.

An hour later Lyuba's red frock was seen hurrying through the courtyards. She ran into an entrance and a minute later she bounded out, whispered something to a girl with a pail in her hand, and ran off.

She met an old lady with a shopping bag. Lyuba talked to her, even carried her shopping bag to the entrance. The old lady, being rather deaf, for a long time could not understand what Lyuba wanted. But Lyuba persisted until she was understood, and then dived into the house.

At one house, a boy bigger than Lyuba did not want to let her into the courtyard. But the girl said something to him, after which the boy stopped waving his arms, squatted down on his heels and began to draw a sort of plan in the sand. They looked round the court together and went into various entrances, where the boy pointed out certain doors and there Lyuba dropped an envelope into the post box.

Until late in the evening Lyuba's red frock was seen flitting about through the courtyards.

That day many boys and girls of the houses surrounding the field received the following notice:

"If it is important to you who will be the first to fly to the moon, if you are a friend of science and cosmonauts, come with your dog tomorrow at eleven o'clock to Rose Boulevard. There you will be met by the staff of LYUGEB."

Rose Boulevard was so called because an enormous rose bush grew in the main flower-bed. Until eleven o'clock on that sunny day in





August the boulevard looked as usual. Babies were snuffling peacefully in their prams. Nurses and grandmothers were scolding mischievous children for throwing balls into the flowerbeds. Pensioners were dozing, their faces covered with newspapers. Domino-players were slamming their pieces down on the table, oblivious to everything.

The scene was suddenly transformed, as if by an earthquake tremor. The pensioners roused themselves and started up from their benches, the nurses stopped scolding the children, and the hands of the domino-players froze in mid-air, in the act of smacking their dominoes down. If the benches had been able to move, they would have turned round to face the unusual procession which marched down the boulevard, filling it with shouting and barking. About twenty suntanned children proudly led on leashes mongrels, huskies, boxers, Alsations and even cuddled poodles on thin legs. A girl in a red frock and two boys, who led the procession, were the only ones without dogs.

"It looks as if they've opened a dog show," said an old lady.

"So it seems."

"But where are the judges?"

"Most likely it's those three in front."

The on-lookers were not far wrong. It was of course the undertaking of LYUGEB—Lyuba, Gena and Borya. It was they who had sent the mysterious invitations. It took all Lyuba's initiative to find out in one day all the names and addresses of the dog owners. And here they all were.

The plan of LYUGEB was simple. From Rose Boulevard they would go to the Institute of Space Research and say: "We have brought you some

dogs. If they are needed for the exploration of outer space, we will give them to you. And, please show us Rags."

Borya described in detail the great aim of the LYUGEB Plan. But he made no mention of Rags.

"Are you willing to give them your dogs?" he asked.

"Of course we are!" answered the owners of the dogs, gazing sadly at their pets, who were wagging their tails.

"That's fine," Borya said. "Now we have to pick out the best specimens. After all, they'll have to fly into outer space!"

Gena lined them up, Lyuba wrote down the names of the dogs and gave each a plus or a minus, according to the opinion of Borya, who looked over the future celebrities critically. It turned out that half of them had cosmic names. One after another came up Venus, Mars, Pluto; there were two Rockets and even one Sputnik. On the whole Borya was pleased with the inspection. But seeing a long-haired Scotch terrier, he wrinkled his nose. He remembered the song the boys had sung at the dog show, "The dog has a beard and a moustache, too, ha, ha, hee, hee. . ."

"A scarecrow. We don't need that kind," Borya said crossly to the owner, a girl in a yellow dress.

"You haven't any right to talk like that!" the girl said in a tearful voice. "My dog isn't groomed but he's very brave. Look at this!" She took a paper from a little hand-bag.

Everybody gathered round Borya, who unfolded the paper and read:

"The District Militia Station expresses its gratitude to Olga Zatsepova for the capture of a criminal by her terrier.

"Station Chief Solovyov."

The certificate had a seal on it.

"What's his name?" Lyuba asked, sitting on her heels and stroking the shaggy hero gently.

"His name is The Hair of Veronica. That's the name of a constellation. Vronnie for short."

"Tell us how he caught the thief," Gena suggested.

"I was walking in the street and saw a man running, hiding something under his coat. A woman ran after him, shouting 'Stop thief! My purse!' I looked round but there was no militiaman in sight. Not even any grown-ups. I had to do something before the thief disappeared. So I told Vronnie, 'Get him!' and let go of the leash. In a flash Vronnie overtook the thief and threw himself at his feet. Before I knew what was happening, the thief was on the pavement.



and my dog, with his teeth bared, was standing over him as though saying: 'Don't dare to move!' My dog has great big teeth, like knives."

The girl leaned over and fearlessly opened the dog's mouth. Long sharp fangs flashed.

"O-ho!" someone exclaimed respectfully.

"Not bad! We'll take your Vronnie," Borya agreed. "Let's go!"

The procession triumphantly wound its way along the street, followed by the curious glances of passers-by. The tram drivers slowed down their trams and waited patiently while the children and their pets crossed the street. The vendors of soda water and ice cream, forgetting their customers, oh-ed and ah-ed, amazed at Vronnie's beard and moustache, while he imperturbably pulled after him his mistress in her yellow dress. On the way from Rose Boulevard to the institute, the friends of science and cosmonauts had to undergo a number of trials. They heroically withstood the onslaught of curious boys and the raids of stray dogs, who tried to start fights with their proud relatives. At one moment two dogs appeared from round a corner and tackled an Alsatian. When the big dog grew angry and jumped on them, the fur flew. It was all the children could do to save the silly things from his sharp fangs.

But everything turned out well. The procession arrived at its destination without losing a single member.

The compact two-storey house, shaded by trees, met them with silence. The dogs promptly lay down on the grass, worn out by the heat.

An old watchman appeared from the gatehouse. He looked over the hushed company and asked sternly:

"Who did you want to see?"
"The Chief," Gena answered for everybody.
The guard snorted ironically.
"Imagine that! And I'm supposed to interrupt the scientists for such nonsense."

"We're not here for nonsense. We're friends of science," Borya tried to explain.

"We know all about your science—climbing over fences!" the guard said.

"I can see that you don't read the papers," Gena said with dignity. "And you are supposed to be a watchman at the Institute of Space Research!"

"He's trying to teach me!" the old man flew into a rage. "Why, the professor himself shakes my hand. I said I won't let you in, and that's how it'll be."

"But we won't go away!" the children shouted.

A man with a preoccupied look came out, attracted by the noise. After hearing both sides, he told the angry watchman that this was a serious business and that one should thank the children and not drive them away.

"You know best," the old man answered, frowning.

"Well, let's see your dogs," the doctor said to the children and began to select inconspicuous little mongrels.

"This one and this one and this one here," he pointed them out. "And the terrier, of course. You're not sorry to part with him, are you?"

"No, of course not!" Vronnie's mistress sighed.

The donated dogs were led away.

"How about us?" The owners of the Alsatians were distressed.

"Your dogs are fine for other purposes. They



can serve excellently on the frontiers, for instance. Unfortunately, they aren't suitable for us. I'll make up a list of the owners of the selected dogs. You can come and visit them. Thanks a lot, children!"

Borya, suddenly afraid that the doctor would go away before he could find out about Rags, touched his sleeve.

"Please, couldn't you show me my dog?"

"Your dog? Is he here, in the institute?"

"I had a dog, Rags. He's now called Courageous. I recognised him on television."

"But Courageous, my friend, was called Snapper and not Rags. And then, he was a stray dog."

"All the same, it's him," Borya insisted. "You can check it. I'll just look at him and say, 'Here, Rags!' And he'll come right over. You'll see!"

The doctor was a kind person and he understood Borya's feelings.

"Well, maybe so," he said after a moment, "maybe it is him. But there's nothing I can do about it at the moment. Courageous is not in town."

"In the country?"

"On vacation. Good-bye." And he turned to go.

"Wait a minute, wait a minute!" Lyuba rushed forward.

The doctor stopped. "What can I do for you, young lady?"

"I wanted to tell you that he's been looking for Rags a whole year. Are you quite sure that Courageous was called Snapper?"

"Yes. We all know that."

There was nothing else to say. Borya, with his head down, was drawing a half-circle in the sand with his toe.

"Come," Gena touched him lightly on the shoulder. "We'll come back some other time."

THE JOURNEY ROUND THE MOON

From the Journal of Observations of the future conqueror of the Universe,
Gennady Karatov, pupil of form 7A

Mankind will not stay imprisoned on the earth forever but, in search of light and space, will, timidly at first, go beyond the atmosphere and then conquer all the space round the Sun.

K. E. Tsiolkovsky.

September 1959

I was right! Tsiolkovsky, of course, too. A rocket flew to the moon. How absurd are people who are carried away by Jules Verne and think they can fly with Barbicane in a cannon-ball. History has proved this.

Yesterday in our apartment, without unnecessary witnesses, we started the first flight to the moon; I had worked on the preparations for more than a week. Our flight repeated the movements of Lunik II on September 12-14.

We distributed the responsibilities. Boris was the container with the scientific apparatus and the pennant, I had the command post and the computing centre, and Lyuba was the chronicler and stenographer. From her scrawl, arousing surprise that a person can simultaneously write and stick her nose into the business of cosmonauts, the present record was compiled.

The rocket was poised, ready and waiting at the launching site. The naive spectators turned their heads, looking for the moon. But there was no moon. They had to have it explained to them that at the moment of starting the moon must be beyond the horizon. Then the flying rocket will meet it at the very highest point above the horizon, and it will be possible to observe the touch down from the earth.

The last preparations were being made. The specialists (Lyuba and I) sterilised the container (Borya). We brushed him down in the hall so he would not take any microbes with him to the moon. If we did not do that there might be an error later, and some lunar elephant grow out of a microbe in the unusual conditions on the moon. The scientists would come and decide that the elephant had been living there for ages. . . .

A signal was heard suddenly (it was the alarm clock). We rushed to the rocket. All the same, the launching was delayed by one second.

Now the container was in the rocket (Borya plumped down on the chair), the thunderous roar of the explosion was heard (percussion caps under the legs of the chair), and the launching site was wrapped up in smoke. The rocket achieved the necessary speed and the engines took it through the atmosphere (I pushed the chair with a broom and it sailed into the other room, that is, into space).

"Do you feel the second space velocity?" I asked Borya by radio.

"No," he said.

We had to add force, that is, to push him again, harder.

"Now I feel it," Borya said angrily but he did not jump up because he was already in space.

Just to be sure, I asked again. Borya said he was flying at 6.9 miles per second, as predicted by the great Newton. What a great force science is! In the seventeenth century, Newton discovered the law of gravity and coolly calculated the velocity at which it is possible to tear loose from the earth. This was the second cosmic velocity. Our container flew at that speed.

"What's the distance to the moon?" I asked Borya. But Lyuba butted in and offered the information she had learned by heart:

"The moon travels round the earth on an almost round orbit. Its farthest distance from the earth, the apogee of the orbit, is 252,542 miles and the shortest, or perigee, is 221,324 miles."

I continued calmly, "But we are flying to the moon along a hyperbola, a curve, and not a straight line. The electronic computers tell me that the distance our rocket has to cover is 230,391 miles."

"Now I know," Boris called from space. "It means I have to fly 230,391 miles at 24,840 miles an hour. . . ."

"A serious mistake," I commented. "What about the earth's gravitation? Have you forgotten about it? The rocket is losing speed all the time!"

To demonstrate this, I jerked the rope fastened to Borya's chair and pulled him back a little. Then I took up my notes and showed my surprised listeners what it means to make accurate mathematical calculations.

"What, for example," I asked, "do two-tenths of a unity mean to us? Assume, Borya, that, at the moment the engines were turned off, your speed was not 6.9 but 6.8 miles a second. Would you get to the moon? The calculations for a flight trajectory say that an error of a yard a second makes for a deviation of 155 miles. Thus, an error of 0.1 mile a second, or 218 yards a second produces $218 \times 155 = 33,790$. An error of 33,790 miles. The radius of the moon is only one thousand miles. In other words no matter how accurately you aimed, with an error like that you would never get to the moon. Moreover, we have to remember that our second's delay in starting takes us 12.4 miles off our course. But that's not so terrible!"

"Wonderful," Lyuba said, but Borya shouted that he was tired of sitting on the chair: the container, he said, should be moving to the moon, but as yet there was no moon.

But I had thought of everything. Without getting up from where I was sitting, I pulled a string and a map of the moon unrolled on the wall to the right of Borya. On it were drawn the indented shores of the seas, the round lunar craters with the folds of the deep crevasses, the whole moon, gloomy, desert-like and mysterious.

The trajectory of the flight showing the point of meeting at the wall was drawn with chalk on the floor. The moon on the string and the chair had to be at the point of meeting at the same time. I kept moving the chair on which Borya sat. Every now and then he reported the time of the flight, and Lyuba compared the graph of his motion with the newspaper. "21.00 hours. September 12," Borya

said. I commanded, "Get ready to observe an artificial comet!"

Borya lit some magnesium in a saucer, and I saw a marvellous flare lighting up space. Our observations of the artificial comet confirmed that the rocket was keeping to the right course.

The moon grew bigger as it got closer to Borya and the earth at his back diminished into a small globe. He was almost at the wall and the map had come up to him. . . . There was a line on the floor with the inscription:

"00.02.24 hours. Sept. 14. Moon landing."

Borya hopped out of his chair and hurled the pasteboard pennant on the surface of the moon. The landing on the moon in the region of the Sea of Serenity was successful, if you discount the broken saucer: Borya forgot all about it.

I now realise how stupid I was when I launched a stove-pipe in the field without making any preliminary calculations. Of course, it ended tragically. As if the low-calorie fuel I used could give the missile the first space velocity! It was a mistake. It is now obvious to me that first one has to prepare theoretically.

November 1959

I have been studying the flight of the world's first interplanetary automatic station, which photographed the unseen side of the moon on October 7. How many times I have written the words "first in the world", and instead of getting tired of it, I'm finding it more and more interesting.

Lunik III has now gone round the moon and returned to earth. It covered a distance of



621,000 miles. When it was 40,365 miles from the moon the cover was taken off the lens and the camera worked for forty minutes.

The automatic instruments in the rocket developed, fixed and dried the film, working in a cylinder 41 inches long. I could, of course, develop a film in such a cylinder though my height is 63 inches, but I would have done it much worse. Even in our bath, which is 98 inches long, when I develop film I often spoil either the film or the prints.

True the picture of Borya and Lyuba and me against the invisible side of the moon came out very well. It was made according to all the rules of photography, with an automatic shutter, and developed and printed exactly by the clock! We drew the new map of the moon together. I drew the circles showing the Tsiolkovsky, Joliot-Curie and Lomonosov craters and the Soviet Mountains. Lyuba coloured in the green Moscow Sea and the Sea of Dreams, and Borya painted the yellow plateaux. He had a lot to do because the plateau area of this side is greater than that of the seas. Instead of water there is dust in seas. Where are the great oceans and the boundless woods so fantastically described by Jules Verne? Only a landscapist like Borya could believe these descriptions.

Imagine what it would be like if I were able to go back a hundred or two hundred years with my map! The astronomers would have decided that I had come from the moon!

April 1960

At school we've started a radio programme. Our class appointed Borya, Lyuba and me to prepare a report. But what could we report about our class? We decided to put on a programme from outer space about all the new discoveries.

For about two months we worked in the district library. It's pleasant to work there, everyone has his own table with a lamp. We read the magazines *Knowledge Is Strength* and *Technology for Young People*, newspapers and the scientific journal *Nature*. On top of that I got some special literature from my father and studied it. The broadcast was set for April 20. We were ready with a note-book full of episodes from history, drawings, maps. We had completed ninety-nine per cent of the work, and all that remained to do was write it down and rehearse it.

Then everything fell through.

We shut ourselves up in my room and instead of writing the report, began to quarrel about the style. We made it up after a while but then Lyuba began reading aloud her own poem about the wind. I told her she should do what our class captain Lev Pomeranchik did: when he turned in paper for the waste-paper collection he surrendered his poems for good measure. Lyuba began to weep. Borya

banged his fist on the table and demanded beautiful descriptions of nature: he wanted them to include nightingales, rainbows, etc. I could not stand that and hit him. He hit me back. We fought in silence, so as not to attract attention. When we had already made up, Father came home and put us out.

I am writing these lines alone and feeling very sad. What are we to do now?...
On this entry, the journal broke off...

SPUTNIK CALLING

All night Gena turned and tossed. In his dream an infuriated Pomeranchik exclaimed, "You couldn't cope with it? I knew it! We'll have to appoint someone else to report on outer space! You'd better be on the sanitary inspection team. Here, take these arm bands."

Gena was horrified.

Early in the morning he jumped out of bed and ran barefoot to the desk and was dumbfounded to see a completed article lying before him. It was neatly typed, with margins and fastened with a clip at the corner. The article was called "Sputnik Calling".

Genka at once guessed what had happened. Grinning, he ran to the couch where his father slept and stepping from one foot to the other said gaily:

"Parents are not allowed to do their children's homework."

"Of course not! It's your work. I only wrote down your thoughts. Besides, you know very well that I can't write poetry. And the poem about the wind is excellent. On your way, son!"

And he fell asleep again. Genka flew off like the wind.

He ran into class when Pomeranchik was telling off Lyuba and Borya.

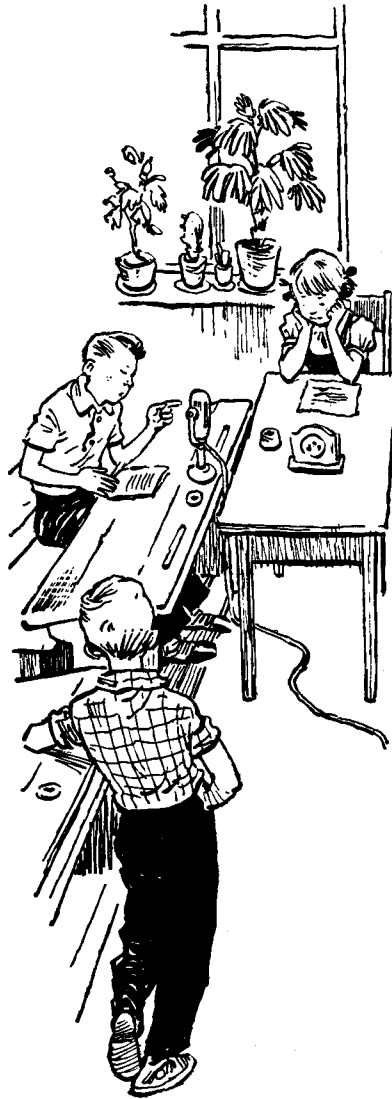
"You braggarts!" he attacked them. "You can't be trusted with anything. I'll put the question before the group council."

"Ah, Pomeranchik, hello!" shouted Gena and in his glee he flipped the class captain on the nose. "Here it is!" He shook the article. "Ready!"

"Hurrah!" Lyuba and Borya cried in unison, and leaving the stunned Pomeranchik they skipped after Gena into the hall.

"You see," Gena explained breathlessly, "I got up thinking that we were cooked, that Pomeranchik would give us hell, and there'd be a cartoon about us in the wall newspaper. Then on the table I saw this article..."

When the long break started the friends went to the radio centre. They had to pound on the door a long time because the older pupils had locked it so that



no one would interrupt them. But they let them in as soon as they heard about the space broadcast. They sat them down at the tables and put a clock under Lyuba's nose, saying, "Watch it. You have fifteen minutes." Lyuba nodded silently and fastened her wide eyes on the clock-face.

"Who will begin?" the boy in charge asked in a bass voice.

"He will," Borya indicated Gena. "And then we'll take turns."

The boy turned on the microphone and the broadcast began. Gena began to read, his voice breaking with excitement:

Sputnik calling!

Sputnik calling!

Soviet Sputnik III calling Earth!

I shall tell you about our earth, about the heavens, about the stars. Listen, you lucky people! You are the first generation of school children to know about the many secrets of your planet.

You are familiar with the sun? Of course, you know it. It shines every day!

In antiquity the Egyptians worshipped the sun. They trembled before wrath of the white-hot god Ra, for they were surrounded by deserts. The only person who could look the god in the face was the Pharaoh, because he had rare and expensive glasses with black lenses. But not even he suspected that he was being saved from the terrible rays of the god Ra, from the excessive generosity of the sun, not by dark glasses and not by prayers, but by the blue sky, by the atmosphere. However, you know all about that—about the sun-god and about the ancient Greeks, who gave us the term

atmosphere, and about the fact that for our earth it is what glass is for a greenhouse. . . .

The year that I took off the atmosphere was disturbed. Scientists gathered at a round table to discuss its behaviour.

"My dear colleagues," one said, "the situation is alarming. Rough stormy weather rages over the whole planet. Elemental calamities have descended upon the human race. I shall give you the facts. There were a hundred great natural catastrophes in the world in 1956. In India thousands of villages were flooded, crops were wiped out, and a million people were left without food and shelter. Rain and turbulent rivers overflowed their banks and flooded even such arid countries as Iran and Afghanistan. And in Western Europe, the fiercest frosts suddenly struck and thousands of people suffered from cold."

Another scientist continued the list of calamities.

"The catastrophes in 1957 were even greater. There were rumours that something had happened to the earth and that for some reason the climate had changed. In Moscow spring came in February, and in Tashkent and Alma-Ata snow fell. In the Black Sea there was a storm with a ten-point wind, followed by a heavy snowfall. And at the same time in Australia and Uruguay it was unusually hot, and the forests and plains were burning with heat. . . ."

A third scientist took the floor.

"I'll tell you about what happened in the following year. In Ceylon there were floods. In the United States there were unusually fierce snow-storms. In Moscow the May heat was followed by violent thunderstorms accompanied by fires. In Japan there was such a drought that they had to ration out water."

The next scientist spoke about the sun.

"Colleagues! This is a period of intensive solar activity. The white-hot luminary is in ferment. Gigantic explosions throw fountains of solar gases heated to millions of degrees into space. You know, of course, that these particles of energy are called corpuscles. They rush toward the earth, travelling a thousand miles a second, and pierce the earth's atmosphere. These outbursts on the sun occur every eleven years. That is what happened not very long ago."



"There have, of course, been natural calamities before. But in those days people had no telegraph, radio and aircraft and they did not know what was going on all over the world. We have gathered here for the first time to enumerate these misfortunes and find the cause. We suspect the sun. In our opinion, it affects the movement of gigantic air currents, which give birth to sudden storms and rain, heat and frost. The sputnik will tell us if what we suspect is true. . . ."

That is what the scientist said when I was launched. And this is what I, Sputnik III, saw.

A solar wind was blowing from the sun. It flew, burning-hot and swift, it flew and sang a song:

*Look out, you space-dust! Clear the way!
Make way, Venus and Mars!
I blow to splinters all I meet;
I'm Champion of the Stars!*

*Old Earth, you're just a puny ball
Among the stars sublime.
I'm bound to meet you on my way
Somewhere in space and time.*

*I'll burn you up and blow away
Your ashes into space.
Expect no mercy for yourself
Nor for the human race!*

*I fly along with fearful speed.
Behind me space-dust spins.
For I'm the Sun-Wind, born of fire,
The awfulest of winds.*

I, Sputnik III, was awed. What if the atmosphere could not stand it? The hot breath of the sun would burn up everything living on earth. . . .

But the earth, our firm, round planet, which has lived for four and a half million years, has some experience in these matters and showed the cock-sure wind its strength. It put an invisible barrier in the path of the solar wind and caught the dangerous visitor in this magnetic trap. The fast-moving corpuscles were caught and imprisoned.

Two giant rings of dangerous invisible particles encircle the earth. They are nested one in the other, and in the centre is our planet. The big ring hung over

me and I flew into the small one. It was not very pleasant, let me tell you. Who wants to meet up with dangerous radiation?

But I will be followed into space by people and not robots. For them the rays are more dangerous. I must explore the road to the stars for them.

Attentively and calmly I studied the two belts of radiation, which were discovered by younger sputniks. I felt like a scientist in his laboratory. I observed and took notes and transmitted my information to earth. I knew my signals were being received by many hundreds of stations, observers and amateur astronomers no matter in which direction I sent them. People wrote down what I said, put their notes in envelopes and mailed them to "Moscow—Cosmos". Or they sat at a telegraph apparatus and typed out the words, "Moscow—Cosmos".

I sent the warning: "Cosmic rays are dangerous. Beware, astronauts, of the invisible bullets. Each particle destroys 15 thousand cells in the body of a human being. That's not much, of course, because a human being has thousands of billions of cells. But anyway, beware of that enemy, find some way of defending yourself. Invent an armoured cabin! Do not fly in the dangerous zone! . . ."

The cosmic particles rushed round inside the two rings and could not escape because the magnetic trap held them. But the fastest and strongest rays broke loose, flew into the atmosphere, warmed it up and gave rise to great disturbances on earth. I again heard the stern voice of the scientist:

"The number of catastrophes has decreased by half. But last year, in 1959, they were the most tragic. In Brazil millions of people suffered from drought. The island of Madagascar was laid waste by five cyclones and by the floods that followed them. Typhoons raged over Japan. The difficult year ended with a hurricane over Mexico and storms on the seaboard of Europe and America."

Below people awaited the voice of the sputnik, and I worked and worked and worked so that the scientists, recording my signals in the language of figures, could put the electronic computers to work to solve problems and thereby unravel the secrets of the universe.

I am a space laboratory. I have explored the way for man. I am glad that I lived in a time when man was getting ready for space travel. He has built spacecraft and sent rockets to his nearest neighbour, the moon, and was dreaming of flights to distant stars with mysterious blue and green planets, and of the powerful fuel that would give him a velocity approaching that of light in order to reach those stars.



Man wanted to be stronger and believed that once he conquered space he would be a giant. He would then be able to send great sputniks round the earth and these would serve as interplanetary stations. On the moon he would build cosmodromes for flights to other worlds, and somewhere far away, on a planet of some strange star, he would obtain the energy that would give him wings for his return to earth.

That, I am sure, is how it will be. The earth will be a launching pad to the whole universe. . . .

The day drew nearer when I would have to burn up, for I sank closer to earth with every revolution. Although the period of life forecast for me by scientists was over, I flew on and on, exhilarated by a sense of freedom.

"How did it happen?" the scientists wondered. "Had our computers made a mistake?"

No, the electronic computers had made no mistake. They correctly solved the given problem. It was just that another surprise was in store for the scientists. It was brought to them by my older brothers, the Luniks.

These rockets looked at the world from a much higher altitude than was permitted me, and they saw that the world breathes. That's right, it breathes! At the time when I set off, the solar wind warmed up the atmosphere and it rose—as if the earth had taken a deep breath. While I was working, the air shell cooled and sank, as a person's chest contracts when he exhales. And I flew along behind. I lived! I was generously granted an extra year of work.

Do you know, you luckiest of all generations of school children, that the earth wears a crown? It is the most beautiful and precious of all the crowns in the world—for it is the life-giving crown of atmosphere. And now I can tell you its size, which has so long been a secret for all mankind: it is 12,420 miles thick. That is no small height. The base of the crown is known to you, of course. It consists of air. Like a suspicious jeweller, I took samples and found only hydrogen. The lightest of all gases rules supreme in the crown. Where did it come from? The sun's rays created it from water. Atom by atom, like endless gas-filled balloons, the hydrogen rises thousands upon thousands of miles, encircling the globe like a light transparent crown. And beyond it is the cosmos, interplanetary space.

Do you now understand, you lucky ones, what kind of invisible cap you live under? Do you feel your place in the universe?

I shall now end this report of my impressions during the tens of thousands of revolutions that I made round the world. My journey was long, as long as eight

journeys to Mars or eleven times the distance to Venus. The radio will bring my words to you.

In a few days I shall go down into the dense layers of the atmosphere and draw the last curve. I am not at all sad about such a fate. I know that the silver spacecrafts will soon be returning home to earth. Then the cosmonauts will remember me kindly and thank the wise, courageous people who created me.

Good-bye! This is Sputnik III signing off!
This is Sputnik III signing off!



When Lyuba finished reading (she read the last part), she felt as though her tongue had become wooden. She gestured: a drink, quick!

The monitors gave her a glass of water and commented:

"The lecture lasted forty-five minutes."

"Oh! What about the lesson? What if we spoke into a dead microphone?"

Gena flung open the door and heaved a sigh of relief. The hall was full of children, just as during a break. It meant they had listened.

A shock-headed boy from the eighth form ran up to Borya and said:

"Were you the ones who gabbed so long? Good for you! Our geometry exam fell through. And your piece about space was something. One feels like flying there."

At this moment the geometry teacher came up:

"Without geometry, Sukhov, you won't fly into space."

She snapped out the words and went away angrily. And at the same time Pomeranchik cornered Gena:

"I liked that bit about the wind! Incidentally, I've also written something about the wind. Now, let me see," Pomeranchik hit himself on the forehead, "ah, yes:

*"Wind o wind, You are swift and strong,
You drive the obstinate clouds along.
You bring the sleet and you bring the rain
And you beat tattoos on the window-pane."*

"Ass!" Gena stopped him. "We were talking about a different wind, a space wind. You didn't understand a thing. What a poet!"

Pomeranchik resented his words. Forgetting he was class captain and respon-

sible for discipline, he went for Gena with his fists. They grappled, pinning each other to the wall and making out as if it were all in fun.

First a button flew off Gena's jacket and then off Pomeranchik's. When the third one popped, they were led into the teachers' room.

"Cool down, boys," the maths teacher said calmly and motioned them to the divan.

Both boys humbly sat down.

When they came out of the teachers' room, Genka whispered:

"Those verses about the solar wind are Lyuba's. That's the way to write!"

This time Pomeranchik remembered he was captain and only showed his fist.

As school was ending, the monitor from the radio centre came running after Lyuba, Gena and Borya.

"Hurry, there's a delegation to see you."

Gena was embarrassed.

"A delegation? My buttons have been torn off." He showed his collar.

"Never mind, they won't notice," the monitor reassured him.

In the radio room the children were met by eight pairs of admiring eyes. The eight delegates said they were representatives of forms 1A, 1B, 1C, and 1D and handed over a sheet of paper with ruled lines.

"What's this?" the head monitor asked.

"It's a list," the representatives chorused.

"What list?"

"For the radio-newspaper 'Sputnik'."

"Well, give it here!"

The monitor read aloud,

"1. Natasha Bylova

2. Alik Petrov

3. Nina Khitrova

4. Kostya Smirnov

5. Yozhik Kovalsky.

"These children were born on October 4. The first sputnik was also born on October 4. We request that this list be included in the next broadcast of 'Sputnik'."

"Good for you!" the monitor said seriously. "We'll include this in the next issue of our 'Sputnik'."

The first-formers went off triumphantly.

Lyuba nudged Borya in the ribs, and Borya nudged Gena, and all three burst out laughing. They did not need to be told that the broadcast had been a success.

BORYA GIVES AN INTERVIEW

There comes at last a morning when the star-gazer awakens surprised and joyful. "Has it really happened?" he asks, as if doubting that the day he had dreamed of has dawned and is shining peacefully.

Young or old, a person experienced and hardened by life or a boy with radiant eyes, the star-gazer's heart beat joyfully on that morning in May 1960 when he heard about the ship.

It was not a sailing vessel, nor a battle cruiser, nor an airliner that filled our dreamer with joy, but a new-born spaceship. It was flying round the globe. And the dreamer decided, "A spaceship has been built, and this means it will soon have a passenger. It can't be otherwise!"

And again news travelled round the globe as fast as the spaceship. It sounded Russian whether in English, German or French. Everyone who said it knew that overhead flew not a little ball but a whole room, airy, warm and comfortable. And round it was outer space which was almost empty and where the pressure of gases was a hundred billion times weaker than inside the giant sputnik. One shuddered to think of it. What if the walls of the chamber would not withstand the stress and the capsule exploded?

But the craft made one revolution after another, and in the cabin it was as warm and airy as before, just like home.

If there was such a durable room there would be somebody to occupy it!

The dreamer could barely wait till twilight to see the brightest star in the heavens. He did not need field glasses or a telescope; he could see the ship with his naked eye! He waited and waited and suddenly he began to feel sad.

*Surrounded by emerald billows,
As soon as the stars light the skies
A sailing-ship, lonely and sombre
Its course through the wilderness plies.*

Was the poet thinking of this ship? No, of course not! Then why did the dreamer feel sad? You see, thousands of people were looking up at the night sky and thousands of others were upset because the spaceship was passing over their country in the daytime, when it could not be seen.

*No sailors are seen at its gunwales,
No skipper is seen at its helm. . . .*

No skipper. . . . A ship without a captain. . . . An empty ship with cargo instead of a man. . . . But is the captain needed? Why should we risk his life? For there is dangerous radiation in space. Meteors fly there a hundred times faster than bullets. It is dangerous to collide with them even if they are minute particles because they can pierce the walls of the capsule. A man would be helpless against them. While he evaluated the danger, a second or two would be lost, during which the spacecraft would fly many miles. So was it not better to trust the electronic brain?

Yes, it is better to trust the computers. They will lead the rocket, evade the dangers and, when necessary, change the spaceship's course.

But there would have to be a commander of the spaceship. He would be the one to investigate the lunar craters and unravel the secrets of Mars? He would be the one to stop the rocket in its course in order to wait for the arrival of an unknown planet? He would be the one to command the computers! The computers were only navigators; the commander would be a man!

The star-gazers meditated along those lines while they waited for the spaceship and thought of voyages to distant stars.

Among them was a real spaceship commander. Like the others, he gazed at the sky and wanted very much to be in the spaceship. But that was impossible. For not a single spacecraft had landed yet, and the doctors were still not convinced of the possibility of a safe re-entry from space. It was a shame: the door to the universe was found but as yet nobody had the keys.

Everyone understood the difficulties of the last step and waited for events to develop. . . .

Soon the telegraph reported:

"In the Soviet Union research in the upper layers of the atmosphere and in outer space continues with the help of geophysical rockets. . . .

"In accordance with the research programme, another in the series of single-stage ballistic rockets was launched in June 1960. . . .

"The launching was successful. The rocket reached an altitude of 682,240 feet. . . .

"The animals on board were landed in good condition.

"The dog Courageous completed his fifth flight into space. . . ."

These calm statements attracted a number of impatient reporters to the institute's doors in the early morning. As always, they were in a hurry. But the objects of interest caused some delay; somewhere in the house the doctors were giving them a check-up.

The reporters crowded round the entrance and joked at the expense of the late-comers.

A puffing, tousled fellow rushed up with a tape-recorder over his shoulder. "Have they left?" he asked anxiously.

"They couldn't go without seeing you!" somebody said. "Hurry and pull your microphone out. The broadcast is about to begin! Comrades," the wag said in the voice of an announcer, "we are in the courtyard of the Institute of Space Research. I'll introduce you to the world-famous cosmonaut, and request him to say a few words about his health. Can you hear that crunching sound? Our astronaut happens to be the rabbit Starlet. He is energetically eating his breakfast of cabbage. Consequently, he is in excellent health!"

The radio reporter listened appreciatively to this speech, laughed with the rest and said, "What do you know about the crunching of cabbage? I travelled to the Pacific Ocean with this microphone to catch the howling of the wind. How would your mute paper convey the force of the wind?!"

It was a fact. The whole country had listened by radio to a storm raging in the Pacific and heard how the crew of a ship worked during the storm. The pounding of the waves, the howling of the wind, the reassuring chug of the engines and all the real sounds of the battle with the elements had awakened in the listeners a feeling of pride in the brave sailors. The radio reporter had certainly done a good job that time!

A girl dressed neatly in a white smock appeared in the entrance and was immediately surrounded by the reporters. It was Valya. She smiled, pleased with the attention and with the morning freshness and with the consciousness of having recently become a doctor.

"Where are the heroes?" the reporters asked.

"They are still being checked, but they'll soon be brought out. What can I tell you in the meanwhile? About the flight?"

"No, tell us about yourself. How you became a space doctor."

Valya flushed. How had they guessed she would now be training test-dogs?

"There's little to tell," Valya said. "I finished school, came here to work as a laboratory assistant and continued with my studies at the institute. I am now a doctor. That is all."

"Now tell us about the flight."

"It was a fine day, like today," Valya said. "Courageous was calm and by his example soothed Malek, who was flying for the first time. There are no complaints about Starlet. If you look at him, you'd never agree that all rabbits are timid creatures. Then we waited through the last hour before the flight, counting

one hour . . . thirty minutes . . . fifteen minutes. . . The flight proceeded normally. We were worried about the landing, because this time the rocket was very heavy. But everything turned out wonderfully. The big parachute opened at the right moment. A helicopter soon took us to the landing place."

"May I ask a question?" one of the reporters said. "The weight of the rocket in which the dogs and the rabbit flew was more than two tons. Our first spaceship weighed about as much. What do you think? Does the success with Courageous have any significance for the landing of a spaceship?"

"I think so," Valya nodded. "I'm not an engineer, but I'll try to answer your question. The flight of a satellite round the earth and the up and down flight of a rocket are two different things. Before a spacecraft lands, for instance, it travels many times faster than sound, and its outer shell is heated to two or even three thousand degrees. But our experiments have certainly helped to develop a very reliable system of retrieving a spacecraft. Think what a great force is needed to raise a big truck into the air—our rocket weighs about as much as a truck. Imagine a parachute which has the task of carefully lowering that truck back to earth, for in it are three living things! I must tell you that these three living things—Courageous, Malek and Starlet—were not even scratched or bruised. Isn't it wonderful?"

"Yes," agreed the reporter who had put the question. "I understood everything you said about engineering accuracy. Thank you!"

"Here they are!" someone cried out.

In the open doorway stood Vasily with two little white dogs. Immediately a commotion started round the little travellers.

The photographers arranged the three astronauts in all possible combinations.

A cameraman used up a length of cine-film, interrupting the photographers. The reporters attacked the doctors with the most unexpected questions. Vasily could not tell one persistent young reporter if Courageous liked steak better than chocolate or vice versa.

Only one man with the tape-recorder looked on all this commotion calmly. When the photographers subsided, the radio reporter went to the little astronauts.

"Be a good fellow and give a big bark!" he said, putting the microphone to Courageous. His tone was so matter-of-fact that none of his friends even smiled.

Squinting in the sun, his tongue lolling from the heat, Courageous looked seriously at the man, not understanding what he wanted.

But Malek suddenly leaped forward and, jumping high, licked the radio reporter on the nose with all his canine spontaneity.

"Oh!" the reporter exclaimed. "You'll have to bark for that."

Malek barked joyfully.

After recording these important sounds for the broadcast, the man with the tape-recorder crossed the court, settled himself in the grass and began to speak into the microphone:

"We are in the courtyard of the institute which sent the dogs Courageous and Malek and the rabbit Starlet on their journey into space. The noise you hear is from the reporters interviewing—if I may use the expression—the returned cosmonauts. . . ."

The reporters did not hear anything else of what the man said into the microphone because their attention was suddenly diverted.

The watchman was the only person who noticed two agile figures slipping between the bars of the grill instead of coming in through the gate.

He stole after the boys along the fence, then between the trees and was about to grab them from behind when they dashed forward, and their excited young voices interrupted all conversation.

"Rags! Rags!" the tow-headed boy shouted as he ran.

Courageous ran to meet him with great bounds, dragging his long leash in the grass. He jumped up to the boy's chest, giving him a lick on the face.

Borya sat down on his heels, put Rags' head on his knees and, looking into his dear kind eyes, began to talk to him in a strange choking voice, which expressed simultaneously his grief





and despair of the past months, and his joy at this reunion.

"Rags, Rags," Borya said, seeing only him. "It's me, remember me? You recognise me? It all turned out so stupidly. I thought I'd never, never see you again. . . . My, how you've grown! And so strong! Do you like it here, Rags? Did you miss me?"

Rags looked into the face of his former master and his tail said that he had long ago forgotten his grievance, that he had missed him, and was glad to see him. Not only glad but happy!

The dog turned to look at Vasily coming up, squinting his eyes behind his glasses, and his tail wagged faster. Yes, he was happy to see and hear Borya. Besides that, he was well off here with this kind man, so he was doubly happy.

"Is this your dog?" Vasily asked in surprise. "I'm glad to meet you."

Borya sprang to his feet, beaming.

"Yes, it's my Rags! I've been looking everywhere for him. And then. . ." He didn't finish, becoming aware of all the curious faces around him.

"What a meeting!" said one of the reporters, smiling. "You say, sonny, that Courageous was called Rags? Curious."

Questions were showered upon Borya.

"How did you lose him?"

"What did he like to do?"

"Did he like steak when you had him?"

"How long did you look for him?"

They asked so many questions that Borya had to tell everything he knew about Rags.

The other trespasser was ignored. Only one journalist paid him any attention:



"I knew it, I knew you'd be here!"

"Father!" Gena cried, overjoyed. "We've found Rags!"

"I saw it all," Anatoly Karatov said.

When Borya finished his tale, Karatov went up to him:

"I'm glad for you, Borya. I was very sorry when you lost your dog."

"It's our fault," Borya confessed. "Genka's and mine. But then," and his eyes narrowed slyly, "if Rags hadn't disappeared, he would never have become Courageous! Now the whole world knows him!"





Borya paused, full of amazement at his discovery, and turned to Vasily.

"Doctor, may we come here sometimes to visit him? Gena and I? We won't get in the way."

"Of course," Vasily agreed. "Be sure to come and visit us."

"Borya! Borya!" Gena punched his friend in the back. "You lucky chap! You found Rags, and he's a famous astronaut!"

Gena looked at his father sadly, as if to say that happiness was unequally distributed in the world.

But Borya didn't hear. He was saying good-bye to Rags.

"I'll come," he said in his ear. "Don't worry! I'll come to see you again."

THE KEYS TO THE UNIVERSE

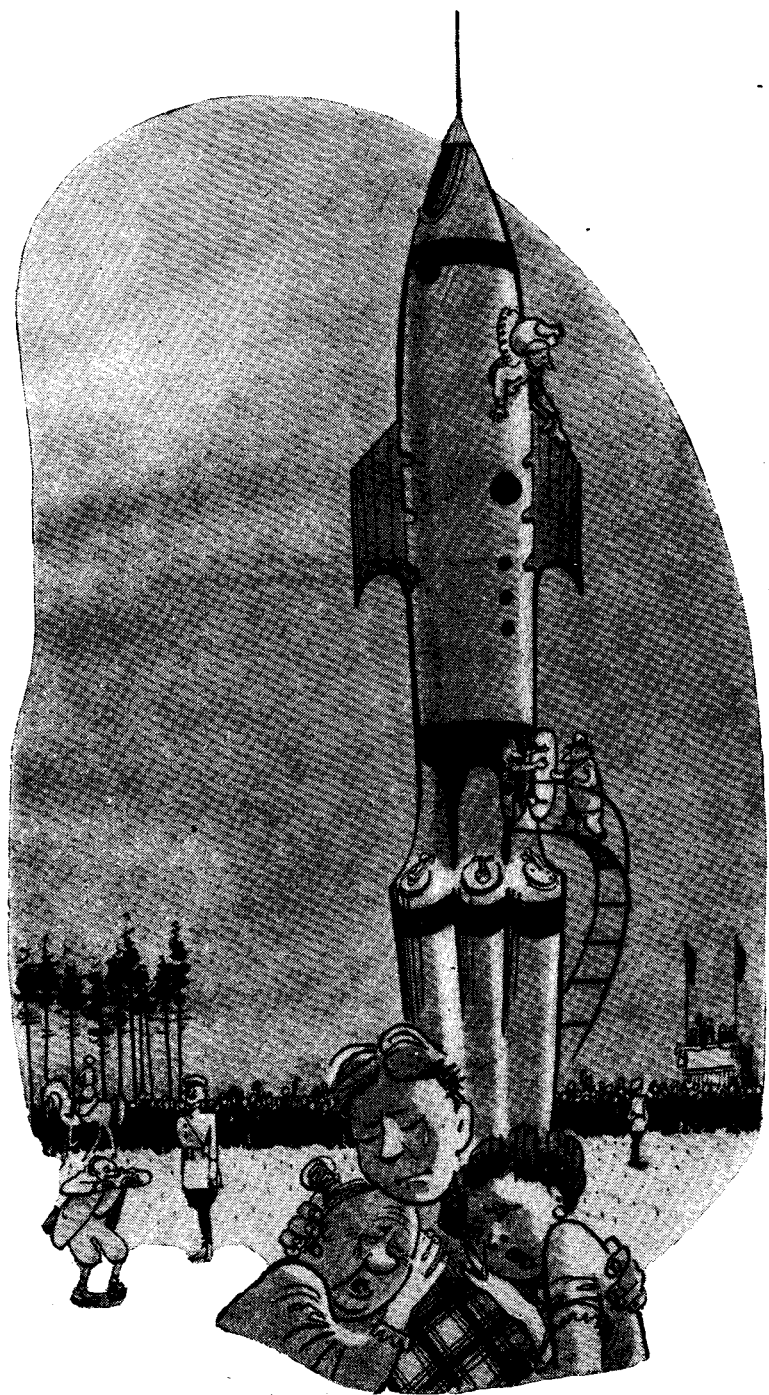
Another spaceship was soon launched. Its passengers were the dogs Strelka and Belka.

The scientists were worried. On the television screen were two motionless portraits. Were they alive?

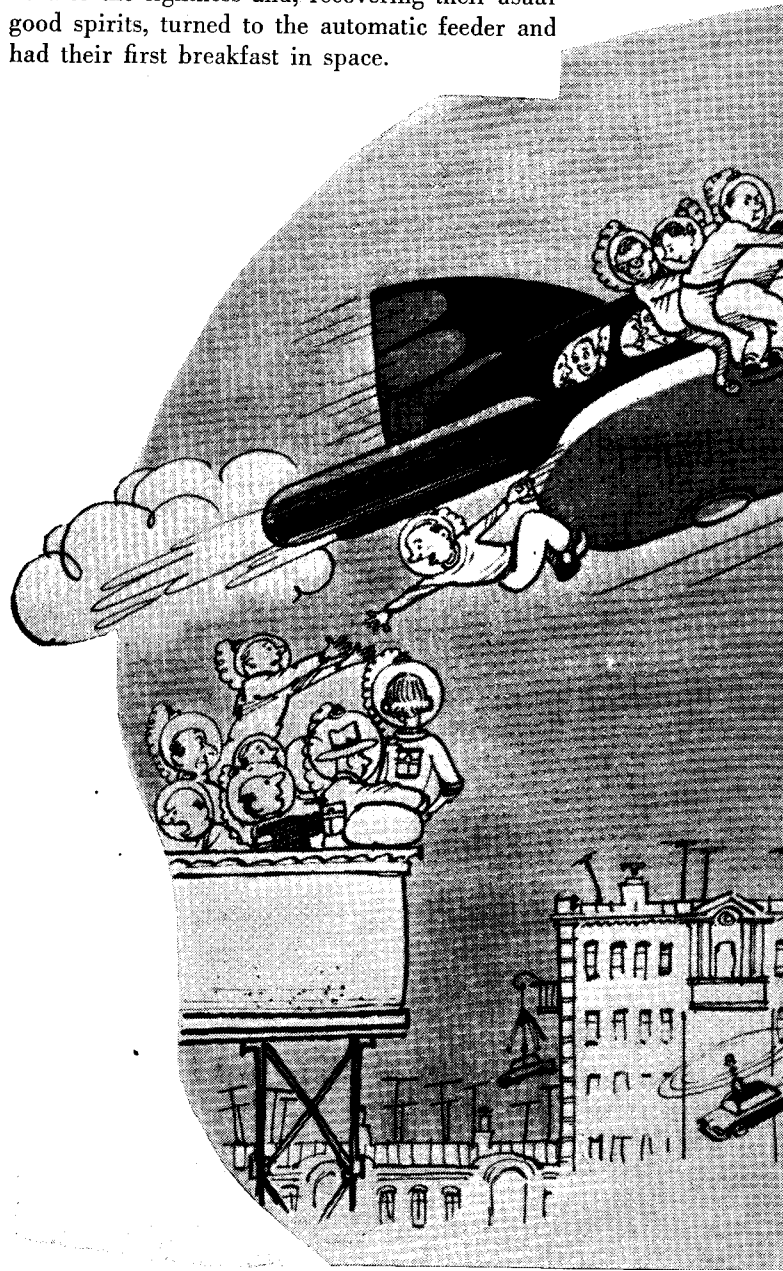
The vehicle went into orbit and the portraits came to life. The passengers began to move.

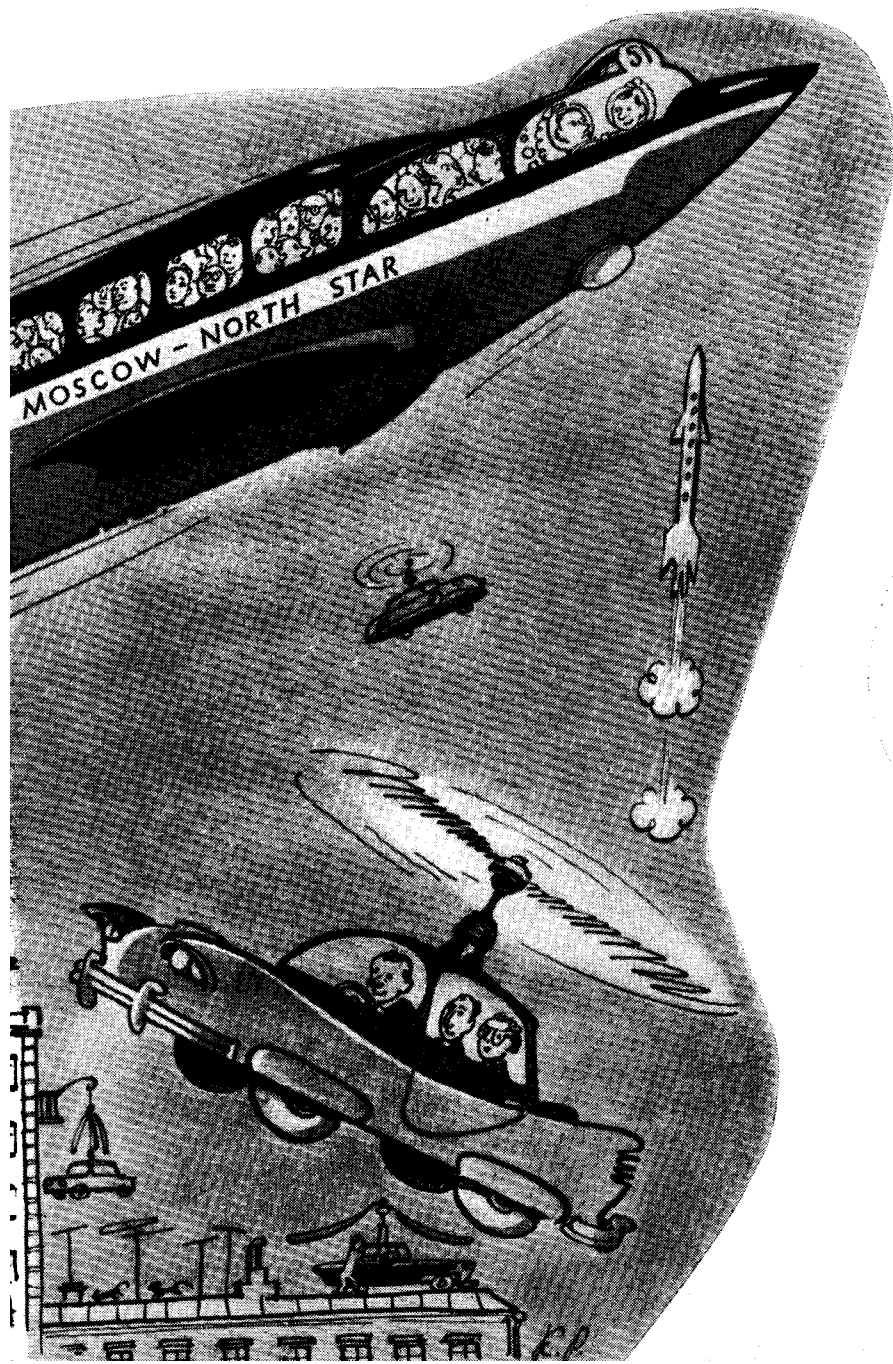
Strelka's slightly snubbed nose nodded, "Yes, we're alive!" Her dark ear and the dark spot round her eye nodded joyfully. Belka, fluffy white Belka, raised her head from her crossed paws, "No, we weren't afraid! Don't worry, please!..."

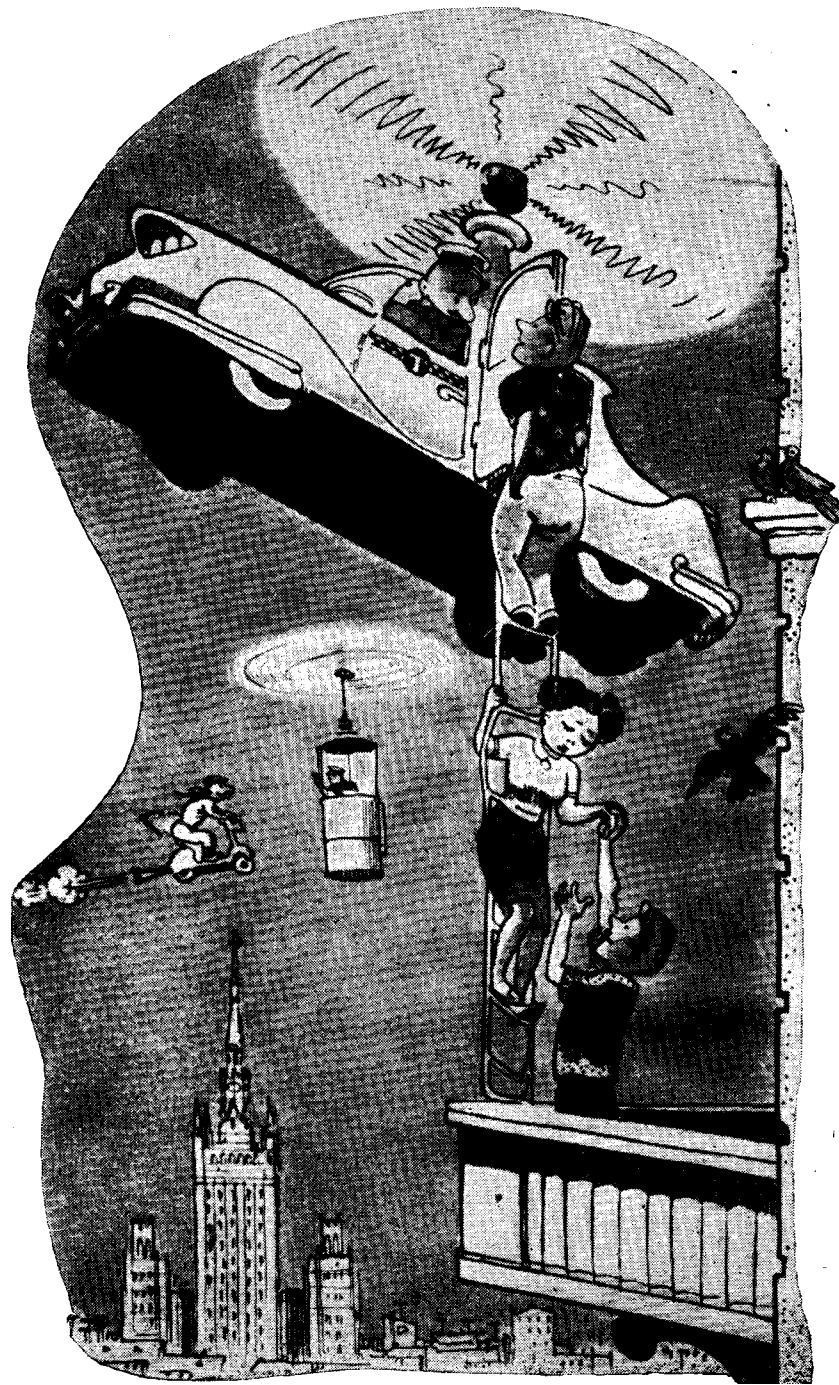
At first they could scarcely control their suddenly unmanageably strong paws; they got angry at them and even barked. Then they got



used to the lightness and, recovering their usual good spirits, turned to the automatic feeder and had their first breakfast in space.







Round and round the spaceship turned in its cosmic waltz. The weightless passengers were alive and moving. The scientists were uninterruptedly observing the living pictures on the screen.

"Belka and Strelka, the rats and the mice, and all the rest of the Zoo are alive and well," the radio announced to the whole world.

At a signal from earth, the ship descended for a landing. The white cupola of the parachute opened and brought the astronauts down in a field. People left their work and ran to greet the guests.

"What a miracle," the collective farmers rejoiced. "Here we were working, the tractor was ploughing, and suddenly a rocket brought cosmonauts to us! Imagine that! It's luck right from the sky! We're the first to see this miracle."

The scientists flew over in a helicopter. They released Strelka and Belka from the cabin, and congratulated each other. What could be a better reward for them than Belka and Strelka—the first safely landed cosmonauts!

"They brought us the keys to the universe!" one scientist said, watching the frisking dogs. Then he looked at the field where the white parachute lay and added, "In Leningrad there's a monument to a dog and Paris has a monument to a frog. Academician Ivan Pavlov and the French physiologist Claude Bernard considered that these animals rendered a great service to science and for that reason they have been immortalised. A monument in honour of the first successful cosmonauts, Belka and Strelka, will one day stand in this field. And somewhere else there will be a monument to Laika."



In the town there is a small garden, which has a modest monument surrounded by flowers. On a high grey pedestal stands a bust of Tsiolkovsky. It is made of rose-coloured granite, and even on dull days the face of the scientist seems to glow with sunshine. Our heroes, Borya and Gena, often come here. They are always discussing something and fiercely arguing. They cannot help arguing because even to science far from everything in the universe is clear and understandable.

A girl with big eyes usually sits near the debaters, on the same bench or the next one. If the discussion is businesslike and peaceable, she pays no attention, looks at the sky, kicks her feet and mumbles her thoughts:

*Why do our rockets bear stars?
On our soldiers, too, I see stars.
On our flags there are bold red stars,
And the skies, too, are full of starlight.*

The artist chooses the most secluded corner of the garden. He has been feeling better lately and prefers to work in the open air. When everything goes well and the picture is successful, he smiles and his kind pencil skims over the paper faster than ever.

Let's go over to him quietly, so as not to disturb him.

Aha! Our heroes are in the picture. Astronaut Boris Smelov, a grown-up man, is preparing for a long voyage into space. It is an awe-inspiring moment! Boris' aged mother and weebegone Lyuba cannot hold back their tears. . . . But where is Gena Karatov? There he is—looking out of the porthole. The impatient scientist has already put on his spacesuit and is waving to his comrade.

And here is another drawing. At the height of the cosmic age, technology will have reached a level where it will be possible to make week-end trips to the Pole star. . . .

Our travellers are earth-dwellers, and they will return home. . . .

We cannot see what happens after that because the artist has closed his drawing pad. He wants to colour the drawings at home, and later he will make a fine present to his young friends.

If you, reader, should come across a shady courtyard with an old mansion in the back, you might see our four-footed heroes. Among the dogs running around the courtyard, it would be easy to recognise the playful Duffer, the inseparable Belka and Strelka, and the lazy, yawning Palma. And who are those six teasing, clumsy, frolicking pups, who rush at some grown-up and on being rebuffed, run back to dark-eared Strelka looking for protection? These merry and robust pups

